

3.9.1 Economic Sustainability of Local Communities

Issue Statement

Forest Plan decisions contribute to economic sustainability by providing for a range of uses, values, products, and services. At the same time Forest Plan direction must be consistent with ecological sustainability. Forest Plan revision may affect the mix of uses, values, products, and services that the Chippewa and Superior National Forests could provide. The mix of uses, values, products and services provided by each alternative are measured by representative values indicated by employment, income, industry sectors, portion of economic cumulative impacts, Net Present Value (NPV) and community resilience. These indicators are measured within a defined impact area.

Indicator 1 – Employment and Income by Forest Service Program Area

The first indicator for economic sustainability is the contribution to the economic impact area by the National Forest program area budgets and outputs in terms of the number of jobs and average associated income.

Indicator 2 – Employment and Income by Major Industry

Indicator 2 for economic sustainability is the contribution to the economic impact area by the National Forest budgets and outputs in terms of total number of jobs and income within major industry categories.

Indicator 3 – Cumulative Economic Impacts

Indicator 3 for economic sustainability involves cumulative economic impacts as interpreted from the economic information analyzed within the economic model used for Forest Plan revision.

Indicator 4 – Net Present Value

Indicator 4 for economic stability includes costs, direct revenues and applied values associated with selected National Forest natural resource management and recreational opportunities. Economic efficiency is a legal concept that National Forests must strive for when managing the National Forest. (National Forest Management Act, 36 CFR 219) A measure of economic efficiency is net present value and it is used to compare these alternatives. NPV is not a mechanism for describing economic benefits of a particular program on local communities.

Indicator 5 – Community Resilience

Indicator 5 for economic stability includes information related to counties associated with the National Forests, (that have National Forest land within the county boundary), the diversity in the county economy as measured by a commonly used index, and the reliance on forest resources by a county in terms of the percentage of county revenue gained from payments by the National Forests.

Revenue, Values, and Costs Used in Analysis

The economic sections of the analysis consider the potential effects to market-related goods and services that are traditionally related to the National Forests, for which monetary values are available, and for which analysis tools are generally accepted. Market benefits can include revenue related to the sale of timber and campground sites. The Forests also provide revenue to the impact areas from expenditures related to the management of the National Forests. These include items such as employee salaries and contracting for trail construction.

In an attempt to address some non-market values, this analysis has incorporated 1990 RPA (Resource Pricing and Valuation Procedures for the Recommended 1990 RPA Program USDA FS RPA Program document) assigned values for the following areas: wilderness, hunting, fishing, non-consumptive wildlife uses, camping, picnicking, swimming, mechanized travel and viewing scenery, hiking, horseback riding, and water travel, winter sports, and resort use.

Other passive use values have not been quantified nor qualified. The analysis does not consider “amenity” values as monetary values, as analysis techniques are less clear. As an example, methodologies to estimate “standing value” of trees and “existence value” of forests are at times controversial and questionable to some points of view. Existence values are things, places, or conditions that people value simply because they exist, without any intent or expectation of using them. Further, reliable independent information on these values was not available in Minnesota at the time of analysis.

Computer Models

Economic effects to local counties were estimated using an economic input-output model developed with IMPLAN Professional 2.0 (IMPLAN). Economic relationships generated within IMPLAN have been extracted and used in the Forest Economic Analysis Spreadsheet Tool (FEAST) models. The FEAST/IMPLAN information has traditionally been

the professionally accepted means of analyzing effects of Forest Plan Alternatives. It provides for an area-wide view of relative difference for employment, income and revenue. This model and spreadsheet analyze only the first decade of the planning horizon. The model IMPLAN utilizing FEAST was used to help analyze the economic variation of forest management based on each alternative’s proposed management emphasis. The Net Present Value (NPV) analysis provided from IMPLAN estimates PNV over the 100 year planning horizon.

Information used in IMPLAN is specific to Minnesota and is data from the year 2000 as later data is not available. Employment and income data was derived from the US Department of Commerce, Bureau of Economic Analysis (BEA) Regional Economic projections from 2000 to 2018, obtained from the University of Virginia Fisher Library web site. Cross tabulations of personal income by major source of earnings by industry, and total full time and part time timber employment by industry projections were included. Please note that the BEA no longer provides these projections and the Fisher Library no longer makes available this information.

Definitions of terms used within the IMPLAN model followed those provided by the BEA and are standards in economic reporting. The “agricultural sector” includes agriculture, forestry, and fishing as a classification of economic data provided by the BEA and Census Bureau.

Basic assumptions of IMPLAN do not include restructuring the economy, nor does it predict the specific future of industry related to the opening or closing of businesses. IMPLAN estimates jobs and income related only to National Forest resources and subsequent changes in proposed management of those resources.

IMPLAN does analyze direct, indirect and induced effects by sector based on timber volume by product, and specific measurable recreation, wildlife, fisheries and mineral related resources values. For additional information about IMPLAN/FEAST please see Appendix B.

Social Assessments

National, regional, and especially local social and economic assessments contributed to the analyses this section as well as in the Social Sustainability section. Two separate, local social and economic assessments were specifically developed for each Forest to assist in forest plan revision analysis. The Headwaters (HRDC) and Arrowhead (ARDC) Regional Development Commissions were commissioned to develop social and economic assessments in the context of counties associated with the Chippewa and Superior National Forests.

Please note that some information in this economic environment section could also apply to the social environment section. (Also see Appendix B for more information on these on other assessments used in the Economic and Social Sustainability analyses.)

Analysis Area

A process that considered State/local planning regions and the associated economies, National Forest supply-based regions, Forest Service expenditures, and other factors, combined to define the economic impact analysis area for Indicators 1, 2, and 3. This impact area encompasses Minnesota and Wisconsin counties that are economically dependant on the National Forests to a higher degree than other Minnesota and Wisconsin counties. The mills in Douglas County, Wisconsin receive and process timber from Minnesota, as do all the Minnesota counties in the impact area. The impact area includes the following counties: Aitkin, Beltrami, Cass, Hubbard, Clearwater, Itasca, Crow Wing, Cook, Lake, Koochiching, Carlton, St. Louis, and Douglas (Wisconsin).

The analysis area for Indicator 4, Net Present Value, considers only the Chippewa and Superior National Forests and the program costs and market and non-market revenue/values associated with selected items.

The analysis area for Indicator 5 encompasses the counties that include National Forest land: Cook, Koochiching, St. Louis, and Lake for the Superior NF and Beltrami, Cass, and Itasca for the Chippewa NF.

3.9.1.a Affected Environment

The Superior and Chippewa National Forests and associated counties are combined into one large economic impact area. This broad, diverse impact area provides a picture of economic interactions within a regional economy.

The affected environment for analysis of economic impacts of alternatives includes the Chippewa and Superior National Forests; 13 northern central and northeastern Minnesota/Wisconsin counties of Cook, Lake, St. Louis, Douglas, Koochiching, Beltrami, Cass, Itasca, Carlton, Aitkin, Clearwater, Crow Wing, and Hubbard; one northwestern Wisconsin county-Douglas; Tribal communities and the Leech Lake, Bois Forte (Nett Lake), Fond du Lac, and Grand Portage Reservations, other National Forest associated communities, towns and cities; and rural areas. People within these areas are affected by and are interested in National Forest management decisions that may change the mix of uses, values, products, and services that the Chippewa and Superior National Forests could provide.

The National Forests provide direct and indirect multiple economic benefits to Minnesota and surrounding states, and especially to individuals and communities within the northern region. Economic benefits contributed to the region by National Forest land include market and non-market opportunities such as timber volume, tourism, wilderness use, balsam boughs, sightseeing, and fishing. Existence value analysis methodologies and value outcomes are not available in Minnesota at this time with reliable, independent information.

There is strong interest by local government units and others to look at the finest economic scale possible (e.g., the community level). However, this finer scale misrepresents the interactions among many local areas and underestimates total impacts associated with the National Forests. In addition, finer-scale impact areas require resource specialists to disaggregate recreation and timber activities to the finer scale; this is beyond the level of precision available in Forest Plan alternatives.

Forest Service Program Areas

The impacts of the alternatives are projected based on Forest Service expenditures and the estimated outputs in three program areas of forest management: recreation/tourism, wildlife and fish, and timber. The output levels used for this analysis represent the projected 10-year average for the planning period. National Forest resource specialists have provided budget estimates based on the best available information and professional judgment.

The Forests have chosen to analyze alternatives using numbers for outputs and revenue that are based on a full funding/full implementation scenario. Full funding scenarios use the projected budget from the National Forests 2003 budgeting process (BEFES, Level 4).

The Forest Service recognizes that the current level of revenues, costs, and outputs by the Chippewa and Superior National Forests do not necessarily reflect the possible anticipated conditions FEAST provides for the alternatives. Alternative A, as prescribed by the 1986 Forest Plans, represents the anticipated conditions as represented in FEAST. Alternative A does not represent actual 1986 Forest Plan implementation outcomes.

Traditionally the Forests have not been fully funded by Congress; rather the funding levels are at approximately 55 percent of the necessary budget to fully implement the 1986 Forest Plans. The existing National Forest conditions, as would any management be in the future, are also influenced by the legal, administrative, and political nature of the times. Therefore, it is not logical to directly compare the existing National Forest programs with the alternative's indicators provided by IMPLAN/FEAST. To do so may indicate large gains in employment and revenues within most alternatives versus the existing condition and would be misleading to stakeholders.

The existing condition, labeled "Current", will be displayed in the tables located within the following discussion of economic indicators. The realistic funding information includes fiscal year 2002 budget values for forest programs. This information will provide a comparison based on the reality of lower funding levels and projected outcomes of alternatives

based on full funding levels. In other words, FEAST/IMPLAN data must be considered as optimum, while the reality of funding may well vary considerably as indicated by the current column.

County Revenue via Payments to States

There are three payments or revenue sources provided to counties via payments to States from the Federal government that are based on the amount of National Forest System land within the county. These payments are a source of revenue for counties and local school districts, and are meant to offset the loss of potential land, goods, and services related tax revenue.

25 percent fund payment

The first county payment or revenue is the 25 percent fund payment. The 25 percent fund payment is based on gross National Forest receipts within a National Forest, and is allocated to the counties by the proportion of the total National Forest acreage within each of the counties in the particular National Forest. For example, if a National Forest had \$1,000,000 in gross receipts, and County A included 20 percent of the acreage of the National Forest, County B, 50 percent, and County C, 30 percent; then the \$250,000 (25 percent of gross receipts) would be split \$50,000 to County A, \$125,000 to County B, and \$75,000 to County C.

However, by Minnesota statute, the 25 percent fund payments are split 50-50 between the counties and the school districts within the National Forest. So for the example above, County A would actually receive \$25,000, and the school districts in County A within the National Forest would receive the other \$25,000.

The Secure Rural Schools and Community Self-Determination Act of 2000 (SRSCS)

The Secure Rural Schools and Community Self-Determination Act of 2000 (SRSCS) signed in October 2000, became a new option to counties to replace the 25 percent fund. It is designed to stabilize annual payments to States and counties over five years, beginning in 2001. The new formula for computing annual payments is based on averaging a State's three

highest payments between 1986 and through 1999 to arrive at a compensation allotment or “full payment amount”.

Counties could choose to continue to receive payments under the 25 percent fund or to receive the county’s proportionate share of the State’s full payment amount under SRSCS. Itasca, Cass, and Lake Counties are receiving payments under the SRSCS Act; therefore payments to these counties will not be affected by changes in the revised Forest Plan. It is believed (based on conversations with county employees) that Koochiching, St Louis, and Cook Counties will choose to receive money under the SRSCS system starting in the year 2004. Beltrami County decided not to switch at this time, however, they have an additional opportunity to change to SRSCS in 2005. Subsequently, they will also not be affected by changes in the revised Forest Plan. Therefore, this analysis will not address “payments to counties” as a stand-alone indicator, but will discuss it within Indicator 5.

Payment in Lieu of Taxes (PILT)

Payment in Lieu of Taxes (PILT) is another federal payment to counties. It is based on the number of federal entitlement acres within a county, with adjustments based on the population of the county; a schedule of maximum and minimum per acre payments, which are adjusted annually by the Consumer Price Index; decreased by the previous year’s other federal payments, including 25 percent fund payments; and the amount actually appropriated by Congress. The PILT fluctuates year to year based partly on the previous year’s 25 percent fund payment and partly on the Congressional appropriation level. In recent years Congress has appropriated approximately one-half to two-thirds of what a full PILT payment would be. It’s not possible to predict PILT payments because the major factor in determining financial allocation is the Congressional appropriation.

Special Acts Payment legislation (Thye-Blatnik)

There is an additional payment to some counties that is apportioned based on the Special Acts Payment legislation (Thye-Blatnik). This revenue stream is based on the amount of BWCAW acres within a

county. Congress determines the credit per acre. The amount per acre is 0.75 percent of the appraised value of these acres and is adjusted every ten years.

County Diversity

Every county’s economy is fueled by one or more sectors that provide jobs and income throughout the area. Jobs and income are dependent upon the size and vitality of these economic sectors. The health of the economy is dependent not only on strong economic sectors but upon a diversified range of sectors. If a county’s economy is heavily dependent on only one industrial segment, it may be vulnerable to declines in prosperity when business conditions for that industry turn downward. Economies that are diversified are more resilient and far less vulnerable to downturns resulting from adverse conditions in any one sector.

Figures ECN-1 and ENC-2 displays the trend of economic diversity indices for each of the counties in the analysis area for the years 1977, 1985, 1990, 1996, and 1999.. These indices were developed by the Forest Service’s Inventory and Monitoring Institute and through IMPLAN modeling using the Shannon-Weaver entropy function. The entropy method measures diversity of a region against a uniform distribution of employment where the norm is proportionally similar employment in all sectors. Diversity is maximized when all sectors contribute equally to employment and when the number of sectors is maximized. The diversity index provides an indication of the extent to which economic activity is distributed among a number of economic sectors and allows a comparison between different areas. An index of 0 would indicate no diversity, and an index of 1.0 would indicate maximum diversity.

The United States, Minnesota, and Wisconsin have the most diverse indices as the economies of each have a large variety of resources. Counties of northern Minnesota, given a less diverse economic base, would be expected to have lower diversity indices than national or state diverse indices. Cook County is shown as having the least diverse index, while Carlton County has the highest index.

Figures ECN-1 and ENC-2 shows diversity indices by counties associated more closely with each National Forest.

Regional Income Levels

The economic level of activity of northern Minnesota is well below that of the State of Minnesota as a whole, generally and especially the urban areas of St. Paul and Minneapolis. The poverty level of an area is an indicator of its economic nature or how well an area is able to meet employment needs of all people. The poverty level of north central Minnesota is eight percent higher than the state average, while the poverty level of northeastern Minnesota is four percent above the State of Minnesota. (Minnesota Northcentral and Northeast Landscapes: Current Trends and Conditions)

Major Industries Affected by National Forest Management

The industry sectors most benefiting from National Forest products are the manufacturing and agricultural (timber-related products), and service sector (tourism and recreation-related activities). Other sectors employing considerable numbers of people within the area of the National Forests include the trade sector (retail stores and wholesale distributors) and governments (federal, state, local, schools). (Minnesota Northcentral and Northeast Landscapes: Current Trends and Conditions)

Within the Chippewa National Forest area, employment in the area is dominated by three sectors: service (29 percent of employment), trade (26 percent of employment), and government (22 percent of employment). These three sectors alone account for 77 percent of all employment in the area.

Within the Superior National Forest area, annual average employment by major industry sector data indicate that the service sector employed the highest number of people and the trade sector employed the second highest number of people for Cook, Lake, and Saint Louis Counties.

Recreation and Tourism

Outdoor recreation, travel and tourism provides an important contribution to northern Minnesota’s regional economy. Tourism has historically been and remains an important part of the area’s economy, and figures are available to measure market values to an area. Tourism is defined by the United Nations Statistics Commission, “As any person traveling to a place outside their usual environment for not more than one consecutive year”. This definition applies to economic activity that stems from both business and vacation purposes regardless of the duration of the trip, as long as it is less than one year. Likewise, this definition does not distinguish between a non-resident visitor and a resident visitor. (Superior NF Social Assessment, ARDC, 2002) Table ECN-1 indicates the estimated economic impact of domestic travel to the northcentral and northeast counties associated with the Chippewa and Superior National Forests.

A University of Minnesota study, referred to in the Superior NF Social Assessment, ARDC 2002, concluded that it is hard to determine what part of tourism can be attributed to the natural amenities offered in the National Forest area, as compared to developed attractions such as golf courses and downhill ski areas. However, National Forest settings and activities that are tied to the aesthetic qualities of,

Table ECN-1. Domestic Travel table			
Estimated Economic Impact of Domestic Travel to the Northeast and Northcentral Counties Associated with the Chippewa and Superior National Forests*			
County	Employment	Wages/Salaries (billion \$)	Gross Receipts (billion \$)
Beltrami	1,207	0.079	0.064
Cass	2,169	0.045	0.114
Itasca	1,727	0.036	0.091
Cook	2,907	0.069	0.159
Lake	708	0.015	0.037
St. Louis	7,333	0.161	0.393
*Minnesota Northeast and Northcentral Regional Landscapes: Current Conditions and Trends Assessments. Information for Koochiching County (to be included in the MFRC Northern Regional Landscape assessment) is not available at this time.			

Figure ECN-1. Chippewa National Forest: Diversity Indices By County

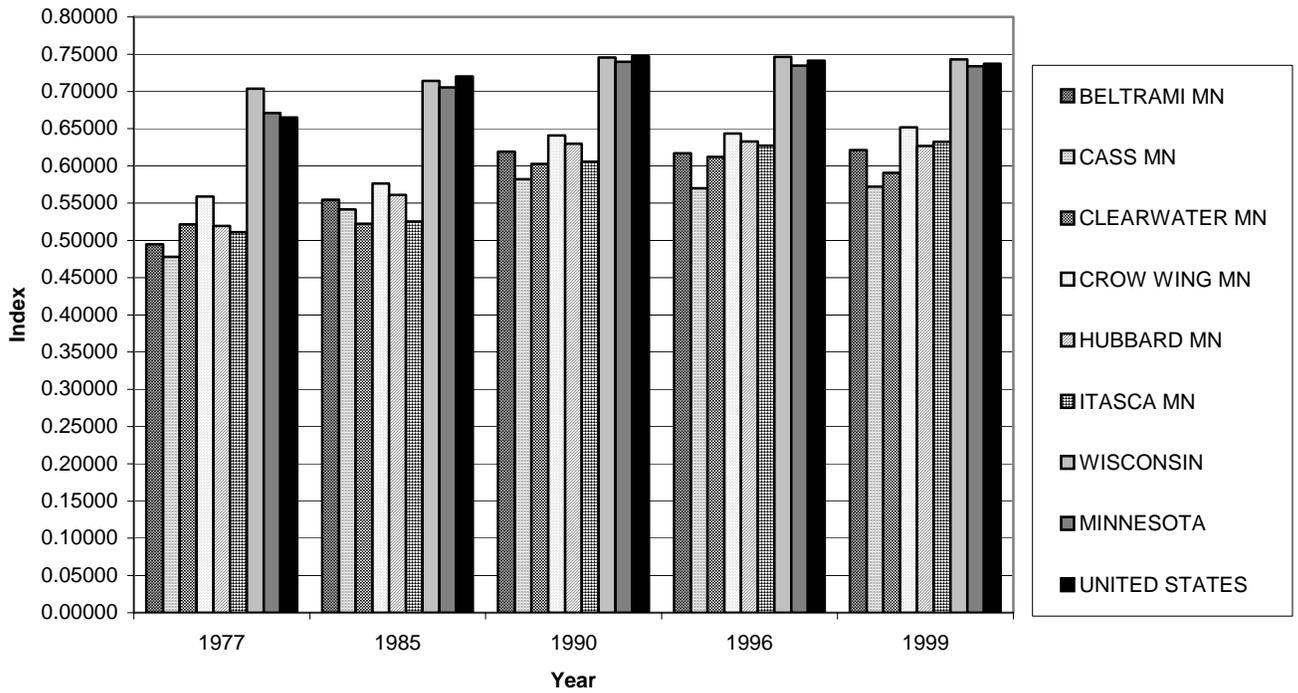
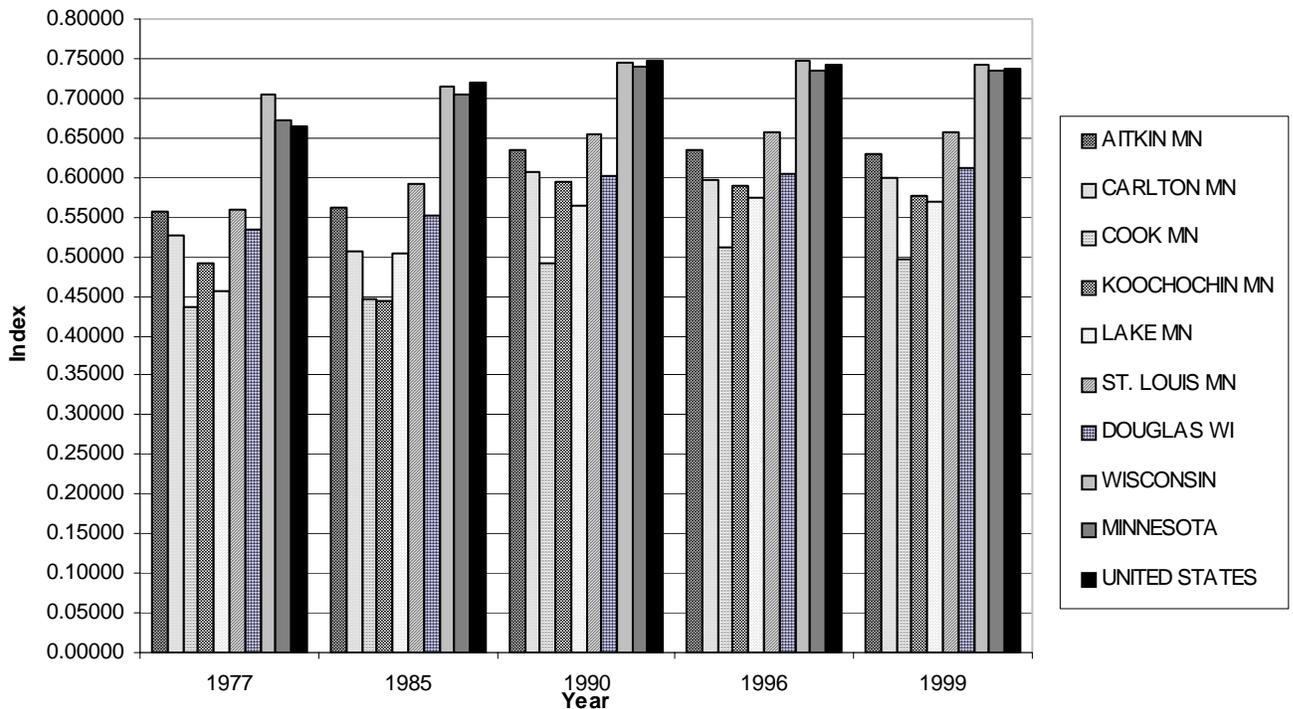


Figure ECN-2. Superior National Forest: Diversity Indices By County



the abundance of, and increased opportunities to experience wildlife, lakes and rivers, large undeveloped forested areas are an important draw to visitors. (Superior NF Social Assessment, ARDC, 2002)

Research has been completed recently on both the Chippewa NF and Superior NF that contains information on the number of visitors to each National Forest; how important the National Forest is to the trip; and expenditures of the visitors. (Individual reports for the Chippewa and Superior National Use Visitor Monitoring Results, USDA Forest Service 2001 – 02; updated 2004) The Chippewa NF received 2.1 million visits in 2002 and the Superior received 4.0 million visits in 2001. A National Forest visit is the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time.

Of the visitors surveyed, 25 percent were asked about the primary destination of their recreation trip. Approximately 89 percent of these people indicated that the National Forests were their primary trip destination.

In a typical year, visitors to the Chippewa NF spend approximately \$1,900 and Superior NF visitors spend approximately \$1,400 per person on all outdoor recreation activities including equipment, recreation trips, memberships, and licenses. These same people estimated the amount of money spent within the group of people they were traveling with, (or if alone, themselves), within a 50-mile radius of the recreation site at which they were interviewed during their recreational trip to the area. Visitors to the Chippewa NF spent approximately \$152.00 per person and visitors to the Superior NF spent approximately \$115.00 per person. (Draft Spending Profiles of National Forest Visitors Years 2000 and 2001 of the Chippewa and Superior.)

Commercial Wood Products and Suitable Timberlands

Commercial wood products directly or indirectly derived from forested timberlands, including national forests, supply the on-going demand for these products

by society. The primary forest products industry is vital to Minnesota's economy and forest health. The industry is especially important to rural Minnesota, where highly paid jobs are important to local economies. (Governor's Advisory Task Force Report on the Competitiveness of Minnesota's Primary Forest Products Industry, 2003) It is dominated by large pulp and paper producers; oriented strand board mills; and flakeboard mills.

Minnesota lands have many uses including production of trees for commercial harvesting. This land is identified as timberland and is forestland that is productive enough to produce a commercial crop of trees and is not reserved from harvesting by policy or law. Timberlands do not include National Forest lands reserved from harvest by policy or law including designated wildernesses like the Boundary Waters Canoe Area. Timberland makes up 27 percent of the acres of all land uses within Minnesota. Of this, Federal lands are 17 percent. (Minnesota Forest Land, DNR, 2002)

There are many contributors to the demand for wood products across the State. Wood comes from private, public, and industry timberlands to meet state, regional, and national demand for wood products. Of these contributors, the National Forest timberlands of the Chippewa and the Superior contribute 5 percent of the estimated 2001 harvest in Minnesota. (*Minnesota Forest Land, DNR, 2002*) See Figures ECN-2 and ECN-3 for graphic information on Minnesota Timberland by Ownership and Volume of Timber sold by Ownership in Minnesota.

National Forest lands contain many acres of lands that are not within the suitable land class for timber harvesting for a variety of reasons. These include lands excluded as a result of law or policy (e.g. designated wilderness and Research Natural Areas), and other lands that are excluded such as lands containing wetlands and campgrounds. National Forests are also managed under the guidance of the Multiple Use-Sustained Yield Act of 1960. This Act established the multiple-use and sustained yield policies for management of the National Forests and creates expectations that these lands will be managed for multiple resource products, benefits and values for the people of the United States. The mix of management necessary to sustain the natural resources, social, and economic resources at the local and

Figure ECN-3. Minnesota Timberland by Ownership

Source: MN Forest Statistics, 1990 – USFS, Resource. Bulletin NC-141 (Table 2); From Minnesota’s Forest, Resources, DNR

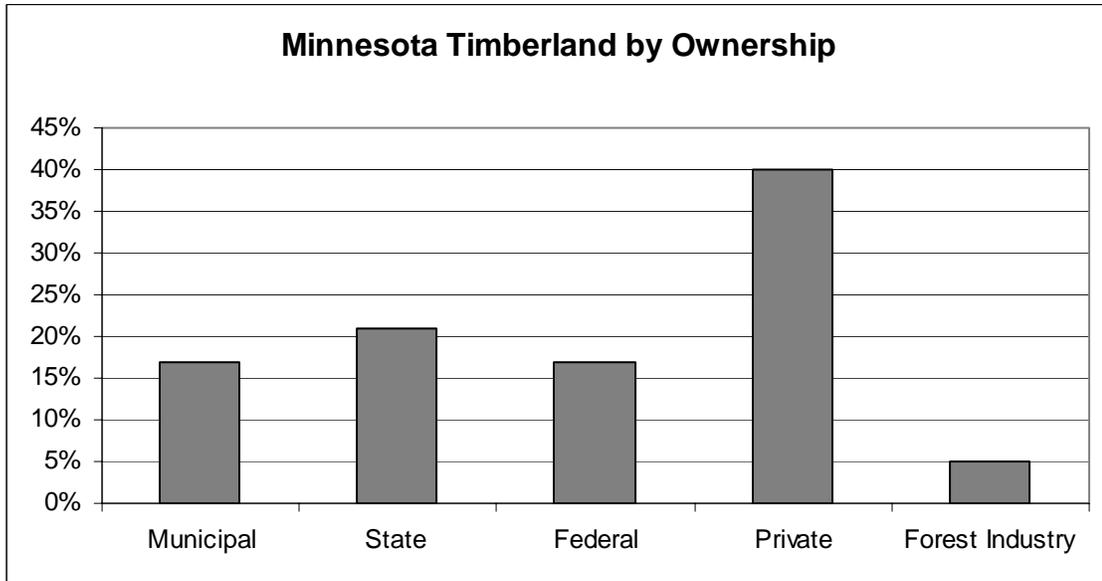
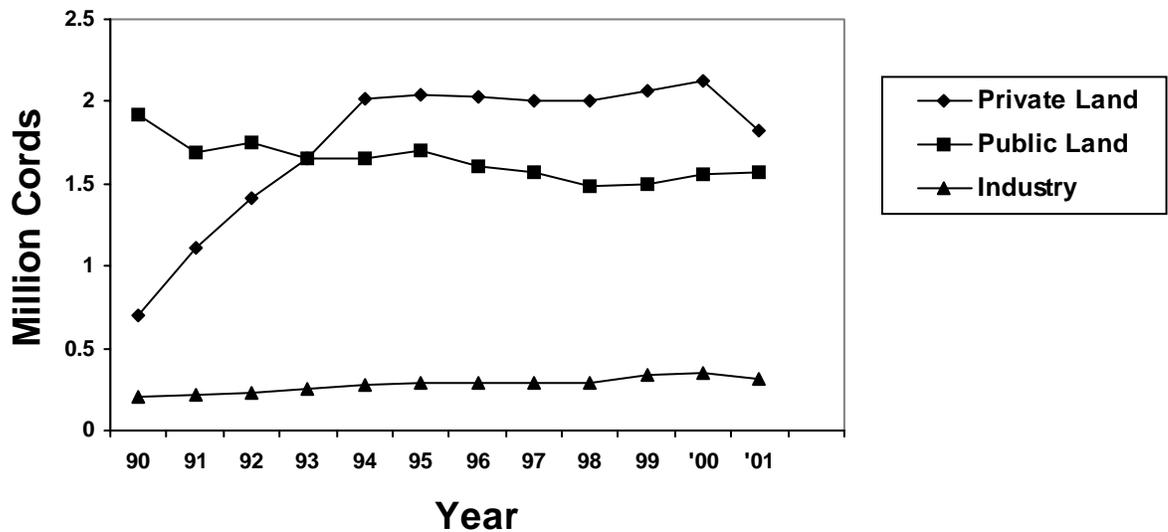


Figure ECN-4. Volume of Timber Sold by Ownership

Source: MN Forest Statistics, 1990 USFS, Resource Bulletin NC-141 (table 7), from MN Forest Resources, DNR



regional level requires forest-wide and site level decisions that do not always maximize timber volume harvested. Factors that influence management decisions include, but are not limited to: threatened and endangered species restrictions, recreational use and opportunities, and water-resources considerations.

3.9.1.b Environmental Consequences

Effects Common to All Alternatives

Economic affects of any alternative may be recognized more rapidly than social effects by local communities and individuals. As proposed quantities of goods, services, and opportunities associated with National Forest land change within each alternative, there would be corresponding changes in employment, revenue, and value. These changes would generally be seen over the first decade, and continue on over the planning horizon of 100 years.

It is recognized that the economies of Minnesota's forest product sectors have been changing over the last decade. There have been job losses, mill closings and disinvestments. The underlying causes of this change operate at multiple scales, from local to global, with far reaching scope and impact. Some of the main drivers of change are market based, over which state government has little influence. (Governor's Task Force, 2003) Within this context, local national forest alternative management proposal affects on specific forest product sectors within Minnesota are unsettled at this time.

The results of the IMPLAN economic modeling should not be viewed as absolute economic values that accurately portray the infinitely complex economic interactions of the regional economy, but rather as an estimate of relative potential effects. Interpretations of the IMPLAN data should be as comparisons amongst Forest Plan revision alternatives of the potential relative economic effects because of limited economic data, associated assumptions, and the limitations of the IMPLAN model itself.

Quantifiable economic analysis methods for passive values are not readily available nor are analysis methods agreed upon for use within the Forest Service. Passive values, such as the value of a sunrise over a lake, associated with the Forests as a whole are no doubt considerable and the Forest Service recognizes the tremendous value of these kinds of opportunities, forest settings, and benefits provided for within each Alternative.

Passive values are extremely difficult to accurately measure, particularly on the per acre basis, which would be needed in order to make a comparison among alternatives. Such values are described and considered qualitatively within the social and other individual resource sections of this document. These non-numeric effects are the "intangibles" that Ann Bartuska, USDA FS Director, Forest and Rangeland Staff discusses in her November 6, 2000 letter with reference to the Congressional Research Service paper "Below Cost Timber Sales: Overview; CSRS Report to Congress; 95-15 ENR; p. 9. It states in the conclusion "net public benefits cannot be calculated, and are assumed to be determined through public participation in national forest planning."

Resource Protection Methods

All alternatives incorporate a base set of management direction that addresses social and economic sustainability. This direction consists of desired conditions and objectives that would apply to and limit the effects of any alternative selected for implementation in the Forest Plan.

Forest Plan Desired Conditions

The Forest provides commodity resources in an environmentally sustainable and acceptable manner to contribute to the social and economic sustainability and diversity of local communities.

The Forest provides non-commodity opportunities such as birch bark and personnel firewood gathering, recreational pursuits, and historical facility access in an environmentally sustainable and socially acceptable manner to contribute to social sustainability and vitality of local resident's way of life, cultural integrity, and social cohesion.

The Forest continues to provide rare or unique benefits that may not be common or available from other ownerships of public or private lands, such as opportunities for experiencing solitude in remote settings, recreating where lakeshores are undeveloped, harvesting unique natural resources, and providing habitat for some Federal and/or State endangered, threatened, or sensitive species.

The Forest continues to emphasize agency, tribal, and public involvement with increases in inter-governmental coordination with federal, state, county governments and agencies; a high level of communication and dialogue with a broad range of stakeholders; and successful dialogue between Tribal governments and Chippewa and Superior National Forests leadership employees.

Forest Plan Objectives

Contribute to local-scale social and economic vitality by promoting and/or protecting area cultural values, traditional employment, recreation opportunities, historical landscape features, and aesthetic qualities of the forest.

An annual and sustainable program of commercial timber sales and other products are offered and/or available.

Increase accessibility to a diversity of people and members of underserved and low-income populations to the full range of uses, values, products, and services.

Improve delivery of services to urban communities.

Direct and Indirect Effects

The discussion below addresses the potential economic effects of various resource management activities associated with each alternative.

Generally the discussion will focus on the economic indicators described at the beginning of this section that respond to issues and concerns commonly expressed by those responding to Forest Service requests for input in the planning process. These

include employment and income, net present value, and community resilience.

The FEAST/IMPLAN analysis and subsequent data can be applied to both the direct and indirect impacts on the economic condition of the assigned impact area only in terms of employment and income. An example of a direct impact is the payment a logger receives from the harvesting and sale of trees to a wood-products facility. The indirect effects are when the wages of the logger are spent on car maintenance and groceries. Another example of indirect and direct impacts is the revenue a resort owner receives from vacationers and then the subsequent investment of that income in fishing boat maintenance and buying bait.

Indicator 1 – Employment and Income by Forest Service Program Area

The following examines the effects of the alternatives on employment and labor income opportunities within the analysis area of Aitkin, Beltrami, Cass, Hubbard, Clearwater, Itasca, Crow Wing, Cook, Lake, Koochiching, Carlton, St. Louis, and Douglas Counties.

The National Forests are legally responsible to provide for a variety of uses and benefits. (Multiple Use and Sustained Yield Act, 1960) These uses and benefits are reflected in Tables ECN-2, ECN-3, ECN-4, and ECN-5 as “Resources”; and have been allocated in FEAST by the amount of money expended by the Forests directly related to each resource. Based on this budget information, and other gathered data incorporated in IMPLAN/FEAST, subsequent employment and associated income figures have been projected for each alternative. It is essential to remember that IMPLAN/FEAST is analyzing only the first decade for these indicators.

It is also important to note that the “current” column in the following tables displays employment and income, as it relates to the average of the last 10 years of actual financial allocation and program management implementation by the Chippewa and Superior National Forests. Comparison of the current column with the full-funded, fully implemented Alternatives indicates that in all alternatives, except D, there would be an increase in employment and income.

Table ECN-2. Employment by Program by Alternative (Avg. Annual, Decade 1) Chippewa NF

Resource	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Mod. Alt. E	Alt. F	Alt. G
Recreation	8,156	8,159	8,158	8,159	8,157	8,159	8,158	8,159
Wildlife and Fish	2,668	2,668	2,668	2,668	2,668	2,668	2,668	2,668
Grazing	0	0	0	0	0	0	0	0
Timber	3,364	7,554	4,362	6,910	812	5,579	3,847	6,345
Minerals	0	0	0	0	0	0	0	0
Payments to States/Counties	32	37	22	39	11	29	21	28
Forest Service Expenditures	258	628	648	670	684	662 17,09	655 15,35	659
Total Forest Management	14,479	19,047	15,858	18,446	12,332	7	0	17,859
Percent Change from Current	---	31.6%	9.5%	27.4%	-14.8%	18.1%	6.0%	23.3%

Source: Table A: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)

Table ECN-3. Employment by Program by Alternative (Avg. Annual, Decade 1) Superior NF

Resource	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Mod. Alt. E	Alt. F	Alt. G
Recreation	17,542	17,544	17,543	17,544	17,542	17,545	17,544	17,544
Wildlife and Fish	3,196	3,196	3,196	3,196	3,196	3,196	3,196	3,196
Grazing	0	0	0	0	0	0	0	0
Timber	3,382	5,305	3,148	6,063	1,319	4,933	4,935	4,601
Minerals	0	0	0	0	0	0	0	0
Payments to States/Counties	35	37	21	45	14	34	29	29
Forest Service Expenditures	565	1,346	1,380	1,394	1,510	1,432	1,408	1,393
Total Forest Management	24,720	27,428	25,228	28,241	23,581	27,140	27,111	26,763
Percent Change from Current	---	11.0%	2.3%	14.2%	-4.6%	9.8%	9.7%	8.3%

Source: Table A: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)

Table ECN-4. Chippewa: Labor Income by Program by Alternative (Avg. Annual, Decade 1; \$1,000,000)								
Resource	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Mod. Alt. E	Alt. F	Alt. G
Recreation	\$161.3	\$161.4	\$161.3	\$161.4	\$161.3	\$161.4	\$161.3	\$161.3
Wildlife and Fish	\$58.3	\$58.3	\$58.3	\$58.3	\$58.3	\$58.3	\$58.3	\$58.3
Grazing	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Timber	\$117.9	\$245.9	\$141.2	\$227.5	\$28.2	\$181.3	\$125.3	\$203.9
Minerals	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Payments to States/COUNTIES	\$1.2	\$1.4	\$0.8	\$1.5	\$0.4	\$1.1	\$0.8	\$1.1
Forest Service Expenditures	\$9.4	\$12.6	\$12.9	\$14.1	\$14.0	\$13.8	\$12.8	\$13.4
Total Forest Management	\$348.2	\$479.6	\$374.6	\$462.8	\$262.2	\$415.8	\$358.5	\$438.1
Percent Change from Current	---	37.7%	7.6%	32.9%	-24.7%	19.4%	3.0%	25.8%
Source: Table B: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)								

Table ECN-5. Superior: Labor Income by Program by Alternative (Avg. Annual, Decade 1; \$1,000,000)								
Resource	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Mod. Alt. E	Alt. F	Alt. G
Recreation	\$346.8	\$346.9	\$346.9	\$346.9	\$346.8	\$347.0	\$346.9	\$346.9
Wildlife and Fish	\$69.6	\$69.6	\$69.6	\$69.6	\$69.6	\$69.6	\$69.6	\$69.6
Grazing	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Timber	\$119.6	\$177.9	\$104.0	\$205.3	\$45.1	\$164.9	\$162.3	\$152.0
Minerals	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Payments to States/COUNTIES	\$1.3	\$1.4	\$0.8	\$1.7	\$0.5	\$1.3	\$1.1	\$1.1
Forest Service Expenditures	\$23.6	\$56.2	\$57.6	\$58.2	\$63.0	\$59.8	\$58.7	\$58.1
Total Forest Management	\$561.0	\$652.0	\$578.9	\$681.7	\$525.1	\$642.5	\$638.7	\$627.8
Percent Change from Current	---	16.2%	3.2%	21.5%	-6.4%	14.5%	13.9%	11.9%
Source: Table B: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)								

Table ECN-6. Chippewa: Employment by Major Industry by Alternative (Average Annual Decade 1)								
	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Mod. Alt. E	Alt. F	Alt. G
Agriculture	93	105	95	104	84	99	93	101
Mining	0	0	0	0	0	0	0	0
Construction	195	241	188	238	138	209	183	215
Manufacturing	2,191	4,836	2,932	4,414	761	3,658	2,609	4,148
Transportation, Communication, & Utilities	531	733	567	703	390	630	542	666
Wholesale trade	461	699	521	661	321	588	492	633
Retail trade	3,899	4,264	3,970	4,218	3,657	4,086	3,925	4,147
Finance, Insurance, & Real Estate	348	456	368	441	275	402	355	421
Services	6,409	6,970	6,503	6,899	6,011	6,686	6,434	6,780
Government (Federal, State, & Local)	322	703	682	728	672	704	686	710
Miscellaneous	29	41	32	39	22	35	30	37
Total Forest Management	14,479	19,047	15,858	18,446	12,332	17,097	15,350	17,859
Percent Change from Current	---	31.6%	9.5%	27.4%	-14.8%	18.1%	6.0%	23.3%

Source: Table C: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)

Table ECN-7. Superior: Employment by Major Industry by Alternative (Average Annual Decade 1)								
	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Mod. Alt. E	Alt. F	Alt. G
Agriculture	175	183	175	186	170	182	181	180
Mining	0	0	0	0	0	0	0	0
Construction	310	335	292	354	264	328	321	317
Manufacturing	2,491	3,717	2,478	4,135	1,371	3,510	3,547	3,340
Transportation, Communication, & Utilities	787	892	776	936	685	873	868	852
Wholesale trade	699	815	696	856	594	795	797	777
Retail trade	6,933	7,185	6,980	7,269	6,829	7,158	7,147	7,117
Finance, Insurance, & Real Estate	578	644	583	668	537	635	632	623
Services	12,116	12,507	12,174	12,643	11,938	12,461	12,439	12,392
Government (Federal, State, & Local)	583	1,094	1,086	1,137	1,148	1,143	1,124	1,111
Miscellaneous	47	56	50	59	46	55	55	54
Total Forest Management	24,720	27,428	25,288	28,241	23,581	27,140	27,111	26,763
Percent Change from Current	---	11.0%	2.3%	14.2%	-4.6%	9.8%	9.7%	8.3%

Source: Table C: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)

Table ECN-8 Chippewa: Labor Income by Major Industry by Alternative (Average Annual; Decade 1; \$1,000,000)								
	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Mod. Alt. E	Alt. F	Alt. G
Agriculture	\$1.9	\$2.1	\$1.9	\$2.1	\$1.7	\$2.0	\$1.9	\$2.0
Mining	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction	\$9.1	\$11.1	\$8.7	\$11.0	\$6.4	\$9.7	\$8.5	\$10.0
Manufacturing	\$83.0	\$163.5	\$98.5	\$152.0	\$27.9	\$123.5	\$88.4	\$137.6
Transportation, Communication, & Utilities	\$22.7	\$31.4	\$24.1	\$30.2	\$16.4	\$26.9	\$23.1	\$28.4
Wholesale trade	\$20.6	\$31.2	\$23.2	\$29.5	\$14.3	\$26.2	\$21.9	\$28.2
Retail trade	\$63.1	\$69.6	\$64.4	\$68.8	\$58.8	\$66.4	\$63.6	\$67.5
Finance, Insurance, & Real Estate	\$11.3	\$15.0	\$12.0	\$14.5	\$8.8	\$13.2	\$11.5	\$13.8
Services	\$122.7	\$137.7	\$125.2	\$135.8	\$112.1	\$130.1	\$123.4	\$132.7
Government (Federal, State, & Local)	\$13.5	\$17.5	\$16.2	\$18.5	\$15.5	\$17.5	\$15.9	\$17.4
Miscellaneous	\$0.3	\$0.4	\$0.3	\$0.4	\$0.2	\$0.4	\$0.3	\$0.4
Total Forest Management	\$348.2	\$479.6	\$374.6	\$462.8	\$262.2	\$415.8	\$358.5	\$438.1
Percent Change from Current	---	37.7%	7.6%	32.9%	-24.7%	19.4%	3.0%	25.8%

Source: Table D: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)

Table ECN-9 Superior: Labor Income by Major Industry by Alternative (Average Annual; Decade 1; \$1,000,000)								
	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Mod. Alt. E	Alt. F	Alt. G
Agriculture	\$3.5	\$3.7	\$3.5	\$3.7	\$3.4	\$3.6	\$3.6	\$3.6
Mining	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Construction	\$14.4	\$15.5	\$13.5	\$16.4	\$12.2	\$15.2	\$14.9	\$14.7
Manufacturing	\$94.5	\$131.4	\$85.8	\$148.3	\$49.2	\$123.5	\$122.1	\$115.7
Transportation, Communication, & Utilities	\$33.4	\$37.9	\$32.7	\$39.9	\$28.8	\$37.0	\$36.8	\$36.1
Wholesale trade	\$31.2	\$36.3	\$31.0	\$38.2	\$26.5	\$35.5	\$35.5	\$34.7
Retail trade	\$110.5	\$115.0	\$111.4	\$116.5	\$108.7	\$114.5	\$114.3	\$113.8
Finance, Insurance, & Real Estate	\$18.6	\$20.9	\$18.7	\$21.7	\$17.1	\$20.5	\$20.4	\$20.1
Services	\$226.5	\$237.2	\$228.3	\$240.8	\$222.0	\$236.0	\$235.4	\$234.2
Government (Federal, State, & Local)	\$27.9	\$53.6	\$53.4	\$55.6	\$56.7	\$56.1	\$55.1	\$54.5
Miscellaneous	\$0.5	\$0.6	\$0.5	\$0.6	\$0.5	\$0.6	\$0.6	\$0.5
Total Forest Management	\$561.0	\$652.0	\$578.9	\$681.7	\$525.1	\$642.5	\$638.7	\$627.8
Percent Change from Current	---	16.2%	3.2%	21.5%	-6.4%	14.5%	13.9%	11.9%

Source: Table D: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)

Evaluation of the alternatives indicates that all would provide thousands of jobs related to total forest management. Only Alternative D at full funding would provide fewer jobs or less income than the current level. In many cases the differences between the alternatives are relatively small, given the large numbers of jobs and income, however, the impacts of losing a job would be considerable to individual persons, families, or businesses. Within very small communities, the loss of a single job may be very important, even though the impact across the analysis area may be negligible.

Analysis indicates that recreation, wildlife, and fisheries expenditures within the Forest Service do not change in response to alternative themes to reflect a difference by alternative during the first decade of associated jobs and income.

The timber harvest associated with each alternative does influence the total number of jobs and income in the analysis area within the first decade. Two factors influence the changes in numbers of jobs across alternatives as identified by IMPLAN/FEAST: 1.) The differences in employment and income between alternatives are for the most part, associated with changes in timber volume and 2.) the type of species product groups harvested. Quantity and type of timber vary considerably by alternative within the first ten years and directly affect the number of jobs within each alternative. (For more information see in the final EIS, Timber, Section 3.4)

In general, the more gross volume harvested, the more jobs an alternative would create. On both the Chippewa and Superior NF, Alternatives A and C would provide for the most timber harvested and also provide for the most jobs. Alternative D would harvest the least amount of timber, and provide for the fewest number of jobs.

The type of species and product harvested under each alternative also influences the number of jobs and income. There are fewer jobs per cubic feet of harvest in the pulpwood industry than sawtimber related industries. In the impact area, as defined by the IMPLAN/FEAST model, harvested sawtimber would result in more labor-intensive work, resulting in more jobs. Examples include softwood sawtimber used in the log home construction business, and also hard and softwood custom wood products. There is also a

higher income associated with sawtimber harvesting due to less utilization of mechanization to accomplish the final product. Those Alternatives with higher ratios of sawtimber to pulp harvested are Alternatives B, G and modified E on the Chippewa NF and Alternatives F, G, and B on the Superior NF.

Overall, based on the five categories of products, (softwood and hardwood pulpwood and sawtimber and aspen) analyzed within IMPLAN/FEAST, Alternatives A and C would provide for the most job opportunities and labor income as a result of forest expenditures for both Forests. Alternatives modified E, G, F, and B would provide somewhat less jobs and income in different order by each Forest. Please see Tables ECN-2, ECN-3, ECN-4, and ECN-5.

Alternative D would provide much less employment and income, as the jobs related to the timber program would decrease substantially. This is a result of the projected volume harvested decreasing immediately and considerably. Most of the employment in Alternative D would be related to recreation, wildlife and fisheries expenditures.

It is important to note that the “current” column, which displays employment and income by program, relates to the average of the last 10 years of outputs by the Chippewa and Superior National Forests

Indicator 2 – Employment and Income by Major Industry

Economic stability is the contribution to the economic impact area by National Forest budgets and outputs in terms of total number of jobs and income within major industry categories. The Forest Service expenditures contribute to a broad range of major industry employment and income as identified in Tables ECN-6, ECN-7, ECN-8, and ECN-9.

Major industry sectors are traditionally defined by the US Standard Industrial Classification system for economic analysis. A consideration of the number of people employed by and number of employers within the major industry sectors is formulated within IMPLAN/FEAST. The results are dominated by two industry groups that depend on natural resources and include: 1.) wood products industries and 2.) tourism industries (services, retail trade and manufacturing).

A review of outcomes from each alternative by industry category demonstrates a range in employment and income by major industry. The projected gain (or loss) of jobs and income may or may not cause re-adjustments within an industry category, but a change in employment would considerably affect the individuals involved. IMPLAN/FEAST does not redistribute jobs from one sector to another due to forest management changes. Rather, IMPLAN/FEAST restricts to occur within each sector, based on the alternative's management theme.

The projected change in number of jobs related to the retail trade and services industry does vary somewhat, based on the limited effects of alternative themes on recreation and wildlife expenditures by the Forest services. These expenditures remain relatively constant across the alternatives over the decade of IMPLAN/FEAST analysis.

This analysis does not draw the conclusion that the incremental change in harvesting associated with the difference between alternatives, will directly result in jobs being added or lost. There are always possibilities of substitution of raw materials from other sources, changes in production efficiency due to modernization, and a myriad of other "possible changes" which affect jobs and income.

The distribution in number of jobs provided by the manufacturing sector would change and is a result of the change in timber volume and type of product. Alternatives A, C, and G on the Chippewa NF and Superior NF, (and Alternatives modified E and F on the Superior NF), would all provide for a number of jobs within the manufacturing industry that does not greatly vary from the existing condition within Alternative A. Alternatives B, modified E and F on the Chippewa and Alternative B on the Superior would reduce the number of jobs within the manufacturing sector, based on a lesser amount of timber harvested. Alternative D on the Forests would support considerably fewer jobs in the manufacturing industry, based on the immediate projected decrease in timber harvested over the first decade.

The labor income by major industry indicates a range of income over the industries and it also varies somewhat by alternative within an industry category. The manufacturing category provides for the largest range of change across the alternatives, based on the

sawtimber and pulpwood emphasis and subsequent ratios of each alternative.

The ranking of alternatives on the Chippewa NF from most to least industry category income, are A, C, G, modified E, B, F, and D; while the ranking of Alternatives on the Superior NF is: C, A, modified E, F, G, B, and D. Alternative D would drop in income considerably, based on limited harvest.

It is important to note that the "current" column, which displays employment and income by major industry, relates to the average of the last 10 years of outputs by the Chippewa and Superior National Forests.

Indicator 3 - Cumulative Economic Impacts

The economic indicators within IMPLAN/FEAST used to display cumulative impacts are the number of jobs and the associated income within the first decade. Tables ECN-10 and ECN-11 present the cumulative economic impact of each of the alternatives in 2012 as projected by IMPLAN/FEAST. The value of the information within the tables lies in identifying the relative changes between alternatives (which has been done in the above indicators) and the relative changes between the current employment and labor income contribution to each impact area total.

The cumulative economic impact IMPLAN/FEAST numbers are not absolute. The 2002 area totals and forest portion of that are numbers based on the best estimate the State of Minnesota is able to provide for labor and income. The 2012 numbers are derived from the FEAST model and are projections of the current numbers.

As displayed in Tables ECN-10 and ECN-11, the overall volume of forest related jobs in the local economy is less than 10%, and would not change much between alternatives. For this reason, despite the differences between the alternatives, the (impact area) economy-wide effects of any alternative would be minimal. However, the direct and indirect effects may be considerable for individual persons, families, or businesses within the analysis area. Within the rural communities of the surrounding area, particularly in very small communities, the loss of a single job may be very important to the community, even though it may be barely noticeable within the larger economy.

Table ECN-10. Chippewa: Cumulative Economic Impacts in 2012

Economic Indicator	2002 (Current)			2012 (Projected)						
	Area Totals	Forest Portion	Area Totals	A No Action	B	C	D	Modified E	F	G
Employment										
Total (jobs)	301,000	14,479	326,000	19,047	15,858	18,446	12,332	17,097	15,350	17,859
% of Area Totals	100%	4.8%	100%	5.8%	4.9%	5.7%	3.8%	5.2%	4.7%	5.5%
% Change from No Action	---	---	---	0.0%	-16.7%	-3.2%	-35.3%	-10.2%	-19.4%	-6.2%
Labor Income										
Total (\$ million)	\$8,592.0	\$348.2	\$9,896.0	\$479.6	\$374.6	\$462.8	\$262.2	\$415.8	\$358.5	\$438.1
% of Base	100%	4.1%	100%	4.8%	3.8%	4.7%	2.6%	4.2%	3.6%	4.4%
% Change from No Action	---	---	---	0.0%	-21.9%	-3.5%	-45.3%	-13.3%	-25.2%	-8.6%

Table ECN-11. Superior: Cumulative Economic Impacts in 2012

Economic Indicator	2002 (Current)			2012 (Projected)						
	Area Totals	Forest Portion	Area Totals	A No Action	B	C	D	Modified E	F	G
Employment										
Total (jobs)	301,000	24,720	326,000	27,428	25,288	28,241	23,581	27,140	27,111	26,763
% of Area Totals	100%	8.2%	100%	8.4%	7.8%	8.7%	7.2%	8.3%	8.3%	8.2%
% Change from No Action	---	---	---	0.0%	-7.8%	3.0%	-14.0%	-1.0%	-1.2%	-2.4%
Labor Income										
Total (\$ million)	\$8,592.0	\$561.0	\$9,896.0	\$652.0	\$578.9	\$681.7	\$525.1	\$642.5	\$638.7	\$627.8
% of Base	100%	6.5%	100%	6.6%	5.8%	6.9%	5.3%	6.5%	6.5%	6.3%
% Change from No Action	---	---	---	0.0%	-11.2%	4.5%	-19.5%	-1.5%	-2.0%	-3.7%

Indicator 4 – Net Present Value

The financial and economic Net Present Value (NPV) is discussed in this section. NPV is used here as the main criterion to assess financial and economic NPV. Net Present Value is a measure of how efficiently the Forest Service is using tax dollars to obtain the goals of each alternative. NPV or economic efficiency considers forest program costs, market-based values (revenues received directly), assigned values (activities such as hiking, fishing, and wilderness use), and non-consumptive wildlife uses (bird watching).

NPV is defined as the value of discounted benefits (or revenues) minus discounted costs. A NPV analysis includes all outputs including timber and recreation, to which monetary values are assigned. In deriving NPV figures, costs are subtracted from benefits to yield a net value. “Future values” (i.e. benefits received in the future) are discounted using an appropriate discount rate to obtain a “present value”. The NPV of a given alternative is the discounted sum of all benefits minus the sum of all costs associated with that alternative. NPV estimates, as required by NFMA (36 CFR 219), attempt to condense a large amount of information into a single value and for that reason should be used appropriately.

When considering quantitative issues, NPV offers a consistent measure in dollars for comparison of alternatives.

This type of analysis does not traditionally account for non-market benefits, opportunity costs, individual values, or other values, benefits, and costs that are not easily quantifiable. The design and evaluation of alternatives included values that are not readily expressed in economic terms, such as species viability and experiential opportunities available on the Forests. Non-market items such as ecosystem services that include clean water and care of wildlife, a variety of recreational opportunities, and ecosystems left in their natural state are maintained across all alternatives. Acceptable quantitative models that analyze opportunity costs and other non-market benefits of National Forests and forest management are not available for Minnesota. This is not to imply that such values are not important, but to recognize that non-market values are difficult to represent with

appropriate dollar figures. In an attempt to address some non-market values, this analysis has incorporated 1990 RPA (Resource Pricing and Valuation Procedures for the Recommended 1990 RPA Program USDA FS RPA Program document) assigned values for the following areas: wilderness, hunting, fishing, non-consumptive wildlife uses, camping, picnicking, swimming, mechanized travel and viewing scenery, hiking, horseback riding, and water travel, winter sports, and resort use.

The existing use and future demand for recreation opportunities has been estimated for the Chippewa and Superior National Forests. Regional trends (including Minnesota) indicate a steady growth in recreation demand (Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends, Ken Cordell, 1999) Local Forest’s recreational use was calculated using the results of the National Visitor Use Monitoring (NVUM) survey within each of the above RPA categories. NVUM was recently completed on each Forest and provides science based, reliable information about the type, quantity, quality, and location of recreation use on public lands. (NVUM Results, August 2002 and updated results, 2004, Chippewa NF) As with any survey, there are known factors that can influence results. One anomaly during the Superior NF survey year is that the Superior NF had very little snow. The small number of RVDs in winter sports reflects this, as snowmobiling, skiing, and other snow related activities had limited participation.

Tables ECN-12 and ECN-13 display the economic and financial NPV for each alternative. All dollars are in constant dollars with no allowance for inflation. A four percent discount rate per year was used over a period of 100 years. While the planning horizon for the Forest Plan is 10-15 years, the NPV analysis considers costs and benefits into the future to account for long-term benefits and to discount costs. While the question of the appropriate discount rate to use is debatable, the four percent level is consistent with what is commonly used in evaluation of public policy. Revenues are not reduced for payments made to states and counties. The reduction of NPV in any alternative as compared to the most financially or economically efficient solution is the economic trade-off, or opportunity costs, of achieving that alternative.

Forest Service budgets have been held constant over the planning horizon. Specific allocation differences between resource programs were made based on each alternative’s emphasis. Forest Service revenues change based on estimated resource outputs by alternative.

As shown in Tables ECN-12 and ECN-13, the NPV (Forest Service revenues minus costs) for the market price includes costs (recreation, timber, soil, water, air, minerals, protection, wildlife, and fish programs) and receipts (timber, fee demo, special uses, and other campground receipts). Mineral receipts were not included, as they are not anticipated to change based on alternative management.

There are inherent differences between the Chippewa and Superior National Forests in terms of value of timber. The average stumpage values on the Chippewa NF are higher than the Superior NF, resulting in greater revenue for the same quantity. Also, the efficiency of harvest is greater on the Chippewa NF because in general the land is more productive, resulting in a higher volume of wood per acre of land. These differences are a portion of the differences in the NPV results between the Chippewa and Superior National Forests.

The Market Price NPV figures indicate there would be deficits across all alternatives on both Forests. Overall, the Superior NF shows deficits greater than \$1,100,000,000 for all alternatives, and the Chippewa NF shows a Market Price NPV deficit over \$419,000,000 for all alternatives. There is a five percent difference between the lowest and highest NPV on the Superior and an 18 percent difference on the Chippewa.

The market price NPV values indicate that those alternatives that have a high volume harvested would provide the least deficit. Alternatives with less of an emphasis on quantity of timber harvested would show higher costs to the taxpayer. This occurs because there would be fewer agency revenues associated with these alternatives while expenses remain comparable.

When the non-market values are included within the NPV calculations, there are considerable differences as compared to the results of the Market Price NPV. The

Table ECN-12. Chippewa NF: Net Present Value:

Alternatives	Market Price NPV (\$1,000)	With Non-Market Price NPV (\$1,000)
Alternative A	(\$419,621)	\$9,797,541
Alternative B	(\$524,117)	\$9,674,886
Alternative C	(\$437,588)	\$9,841,971
Alternative D	(\$599,987)	\$9,600,919
Modified		
Alternative E	(\$485,053)	\$9,765,626
Alternative F	(\$520,128)	\$9,666,924
Alternative G	(\$499,534)	\$9,695,018

Source: 110802 Chip_NPV 10dec.xls

Table ECN-13. Superior NF: Net Present Value

Alternatives	Market Price NPV (\$1,000)	With Non-Market Price NPV (\$1,000)
Alternative A	(\$1,131,223)	\$10,199,342
Alternative B	(\$1,258,411)	\$10,143,825
Alternative C	(\$1,152,855)	\$10,209,216
Alternative D	(\$1,361,584)	\$10,045,415
Modified		
Alternative E	(\$1,210,453)	\$10,183,042
Alternative F	(\$1,245,317)	\$10,065,190
Alternative G	(\$1,225,956)	\$10,126,178

Source: 110802 Sup_NPV 10dec.xls

value added by the assigned value (non-market RPA given value indicators from Resource Pricing and Valuation Procedures for the Recommended 1990 RPA Program, USDA Forest Service RPA Program document), provide for a substantial gain in “revenue/value” and subsequently a positive NPV calculation within each alternative on each Forest. The application of the alternative goals on the Chippewa NF resulted in all NPV (with non-market values) calculations to be between \$9,600,919 and \$9,841,971. On the Superior NF, all NPV calculations are between \$10,209,216 and \$10,045,415.

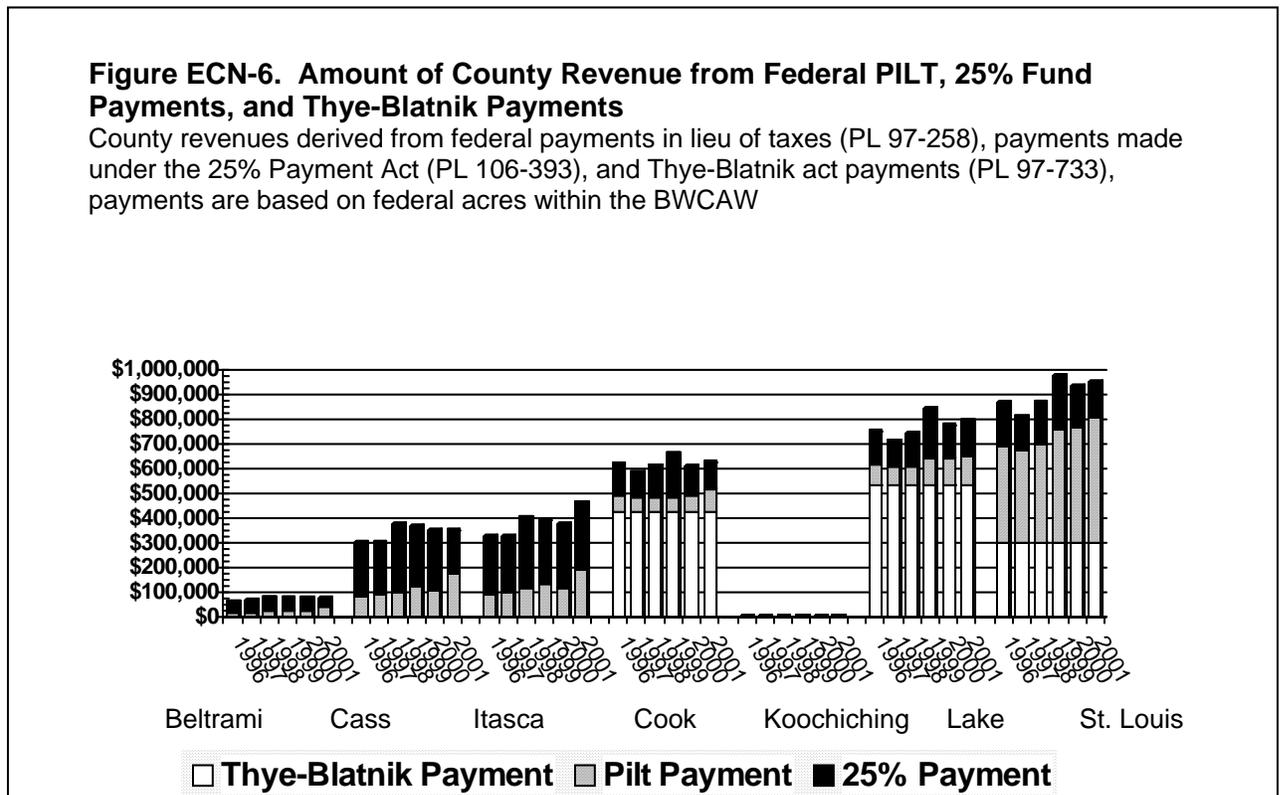
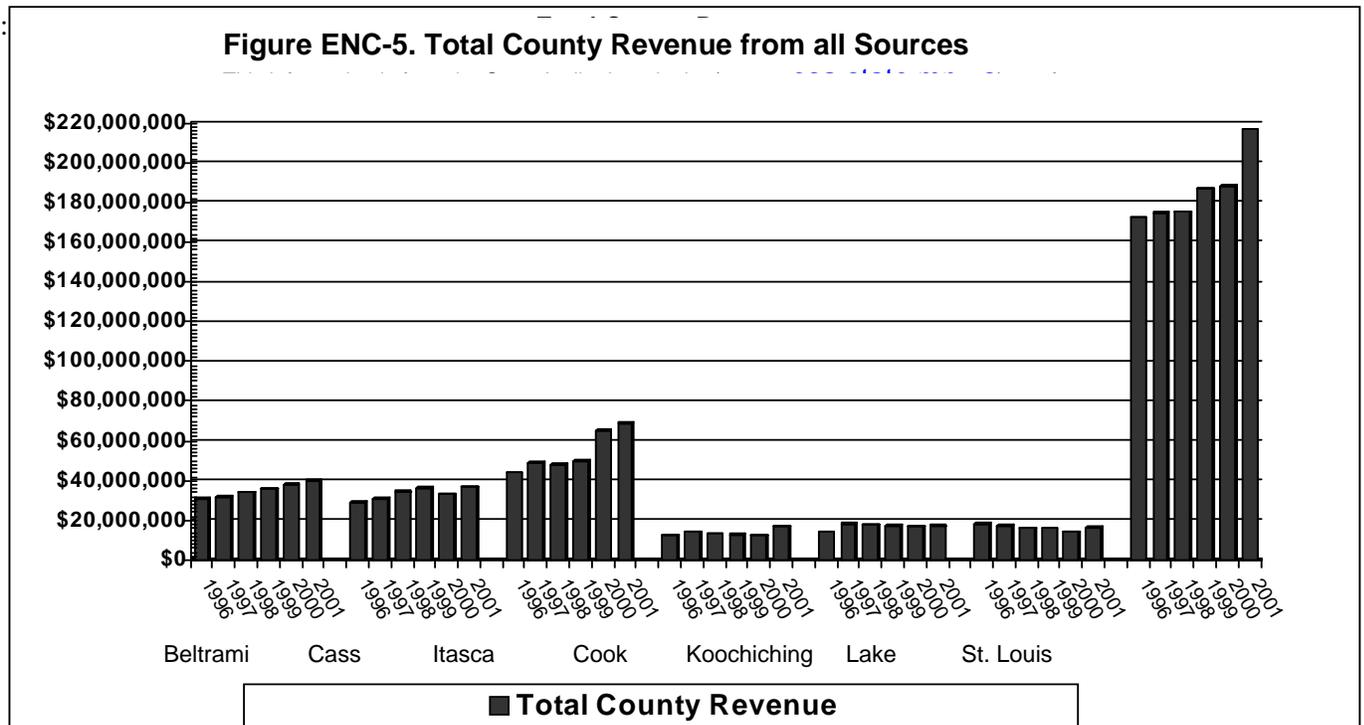


Figure ECN-7. Percent of County Revenue from Federal PILT, 25% Fund Payments, and Thye-Blatnik Payments

Percent of total county revenues derived from federal payments in lieu of taxes (PL 97-258), payments made under the 25% Payment Act (PL 106-393), and Thye-Blatnik Act payments (PL 733, payments are based on federal acres within the BWCaw).

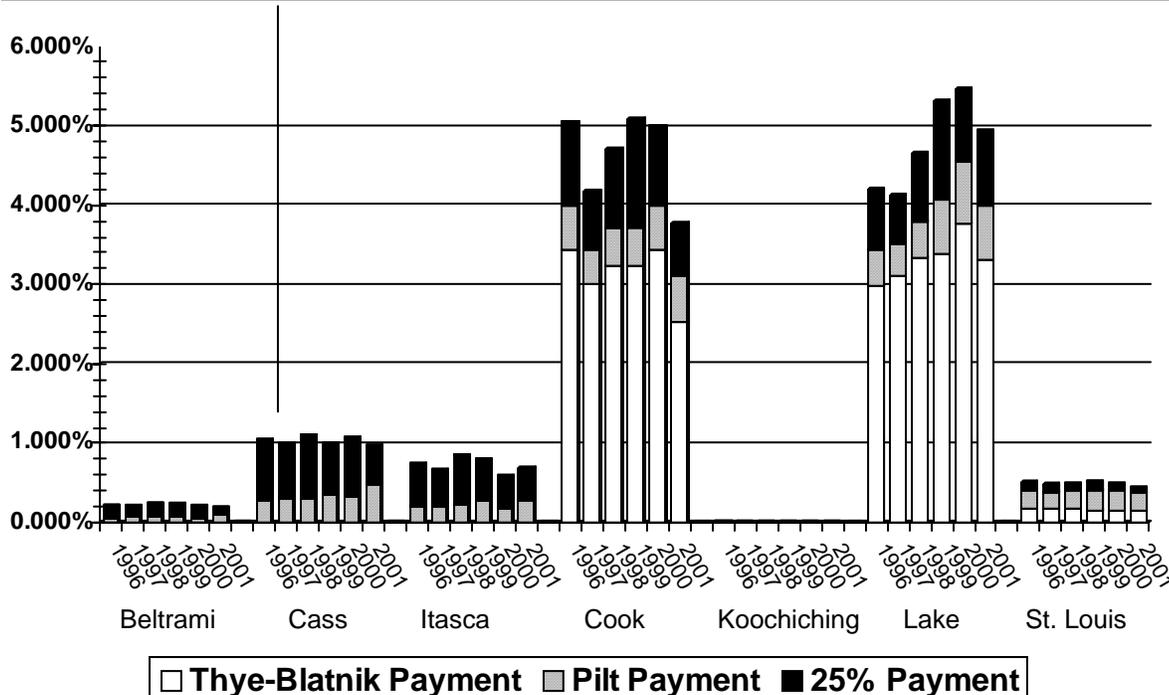


Table ECN-14. Chippewa: Forest Service Revenues and Payments to Counties: (Average Annual Decade 1; \$1,000,000)

	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F	Alt. G
Recreation	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8
Wildlife and Fish	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Grazing	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Timber	\$6.5	\$7.7	\$4.2	\$8.2	\$1.5	\$5.7	\$3.9	\$5.5
Minerals	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
Soil, Water & Air	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Protection	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Revenues	\$7.5	\$8.7	\$5.1	\$9.2	\$2.5	\$6.6	\$4.9	\$6.5
Payment to States/Countries	\$1.9	\$2.2	\$1.3	\$2.3	\$0.6	\$1.7	\$1.2	\$1.6

Source: Table E: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)

Table ECN-15. Superior: Forest Service Revenues and Payments to Counties: (Average Annual Decade 1; \$1,000,000)								
	Current	Alt. A No Action	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F	Alt. G
Recreation	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8
Wildlife and Fish	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Grazing	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Timber	\$5.0	\$7.5	\$3.8	\$9.3	\$2.2	\$6.7	\$5.6	\$5.6
Minerals	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2
Soil, Water & Air Protection	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Revenues	\$6.0	\$8.5	\$4.9	\$10.4	\$3.3	\$7.8	\$6.7	\$6.6
Payment to States/Counties	\$1.5	\$2.1	\$1.2	\$2.6	\$0.8	\$1.9	\$1.7	\$1.7

Source: Table E: Forest Economic Analysis Spreadsheet Tool (Version 10.4.2002)

Indicator 5 – Community Resilience

This indicator is evaluated qualitatively, reviewing information contained in the Shannon-Weaver Index of County Diversity, and also from information on county revenue allotments based on portions of Federal revenue.

Timber volume and species product potentially available for sale changes by alternative. This has the potential to effect changes in payments to counties receiving payments via the 25 percent fund. Over the long term, it also may affect payments received via the SRCS method, if changes are made in the years a county might use to determine average revenue. Timber sale revenue changes by alternative, and is the only revenue source to affect changes to payments to counties receiving 25 percent funds. Other revenue sources such as recreation and minerals remain constant across alternatives.

The revenue that counties receive based on the amount of National Forest land within their boundaries contributes in varying degrees to a county’s annual budget. For example, Cass and Itasca Counties receive more than Beltrami County, based on the amount of National Forest lands within each county. None receive more than one percent of their budget from National Forest revenue. If the total county budget is small, changes in revenue even at a small scale have the ability to affect programs. Lake and Cook Counties associated with the Superior NF find

that federal revenue related to National Forest land comprises more of their budgets than Koochiching and St. Louis Counties. Koochiching County has very little Superior NF land, hence the small amount of revenue. St. Louis County has a large budget with associated income from many sources. Although it receives approximately the same amount of federal revenue related to National Forest land as Cook and Lake Counties, it is a smaller amount of the total county budget. Changes in revenue within counties that rely on federal money as a larger proportion of their budget may be more affected by negative changes in that revenue.

Within counties associated with federal revenue generated by national forest management, Figures ECN-5, 6 and 7 indicate total county revenue, revenue from federal sources related to National Forest management, and the percentage of that revenue within a county’s total budget.

Another source of information on the amount of potential revenue to counties by Federal payments related to National Forest land is IMPLAN/FEAST modeling output (Please see Tables ECN-14 and 15). This information identifies potential monetary changes only within the 25 percent fund as a result of projected alternative implementation over the first decade. The model does not take into account recent legislative changes and options counties now have to receive federal reimbursement. Counties can continue to receive the 25 percent fund or receive a proportionate

share of the State's full payment amount under the SRSCS Act.

The IMPLAN/FEAST information indicating revenue to counties should be reviewed in terms of the traditional 25 percent fund receipts and as a relative comparison between the alternatives as to what may or could be received. At this time and as indicated on Tables ECN-14 and ECN-15, total revenue distributed by alternatives appears to be in this order, from more to less: Chippewa NF: C, A, modified E, G, B, F, D and on the Superior NF: C, A, modified E, F/G, B, D. Over the long-term, whichever option for reimbursement counties may choose for National Forest land, the selected alternative will have an effect on the total contribution. The current options for reimbursement include a reliance on historical National Forest revenue, so a change in goods and services based on alternative management direction will have a minimal effect on potential county revenue.

The county diversity index measures economic diversity of a region and provides an indication of the extent to which economic activity is distributed among a number of economic sectors and allows a comparison between different areas. Diversity is maximized when all industry categories contribute equally to employment and when the number of sectors is maximized. An index of 0 would indicate no diversity, and an index of 1.0 would indicate maximum diversity. Figures ECN-1 and 2 indicate that the United States, Minnesota and Wisconsin approach a diversity index of 1.0, while individual counties have less broad-based economic sectors thus reducing the diversity index.

The diversity index suggests that those counties with less diversity may be more affected by a change in the economic context the county operates in. For example, a decrease in the availability of timber resources may affect a less diverse county that relies heavily on timber products for job creation. Those lost positions may not be transferable into other sector jobs that would continue to contribute to the counties economic environment. A county with a stronger diversity in economic sectors may be able to absorb a reduction in jobs related to a loss within an industry sector.

Population is also a premise used in conjunction with the diversity index to measure diversity resilience to economic effects. The larger the population, the more readily an area can adapt to changing social and economic conditions. (Forest Service Roadless Area Conservation FEIS, USDA FS 2000) Only a general statement may be made in the context of this premise for the Chippewa and Superior National Forest areas. This is that the population of the area associated with the Forests is much less than counties closer to and within large metropolitan areas and cities. The ability to adapt to changing social and economic conditions may therefore be somewhat more difficult for communities in the National Forest-associated areas than in the metro area.

The counties associated with the Chippewa and Superior National Forests all rely to some degree on National Forest management to provide for the economic benefits. The preceding IMPLAN/FEAST data on 25 percent fund payments indicate that there are changes in the amount of federal revenue available by alternative. The information from the percentage of county budgets funded by federal payments related to national forest revenue, and the Diversity Index also indicates that based on existing county-based economic information, reductions in federal revenue will affect some counties more than others.

Those counties that rely less on this revenue to finance appropriate operations and have a higher diversity index would be less affected by the selection of one alternative over the other, even those alternatives providing less revenue, in their allocation of payments.

Counties that rely more on federal revenue and are less diverse may see reductions in revenue and support of appropriate functions based on selection of an alternative that provided less federal revenue from the sale of timber.

Cumulative Effects

Cumulative economic effects are included in all of the discussions above, and particularly Indicator 3, because in most cases information on adjacent lands within the economic analysis area, is included in the IMPLAN/FEAST analyses. Cumulative economic and

social effects are also discussed in the following the
Social Sustainability section.

3.9.2 Social Sustainability

Issue Statement

Forest Plan decisions contribute to social sustainability by providing for a range of uses, forest settings, visitor experiences, products, and services. At the same time forest plan direction must be consistent with ecological sustainability. Forest Plan revision may affect land allocations, management actions, uses, values, products, and services provided by the Superior and Chippewa National Forests.

Please note that some information in this social environment section may also apply to the economic environment section.

Indicator 1 – Changes in Key Themes or Characteristics of Inventoried Special Places

There are more than 6,000 inventoried special places combined on the Forests. Many of these special places are based in continuing traditions passed down from prior generations, while several of the special places are “new” to many people. Many of these areas are associated with lakes, rivers, and older forests, along with special areas associated with game hunting and younger forests.

Most of these areas are defined by a person’s sense of place. Sense of place involves physical locations that people have invested with meaning, value, and feelings because of their experience there. The sense of places is crucial to the Ojibwe Tribal culture. Some place values are use-oriented. People value these places because they support a particular use that they like to engage in, such as a mushroom picking spot or a favorite fishing hole. Once the place no longer supports that use, it may lose its value to the individual and cause him or her not to return there. Other place values are attachment-oriented. People develop emotional bonds to places, which are important to them for providing certain kinds of

experiences they value. Even if conditions change in these places, people may continue to revisit them. Sense of place can play an import role in fostering individual identity, influencing quality of life, reinforcing cultural traditions, and shaping attitudes toward the land and how it should be managed. (Forest Service Roadless Area Conservation FEIS, USDA FS, 2000)

Because of the number and distribution of these special places, this indicator will describe changes in forest settings across the alternatives via proposed scenic integrity levels, recreation opportunity spectrum, and wildlife species associated with early successional forests and mature forests.

Indicator 2 – Changes in Traditional and Culturally Important Areas

The Chippewa and Superior National Forests are important to many people for a variety of opportunities, benefits, and values related to cultural, spiritual, and traditional practices. Native American populations have a stake in many areas of the National Forests, as do many other people. These areas would be affected by decisions made based on the revised Forest Plan direction.

Effective land management that recognizes the effects of forest changes on individuals and communities involves working cooperatively with all people that have an interest in National Forest management.

The Chippewa National Forest as a whole is important to members of the Leech Lake Band of Ojibwe (LLBO). Sites and/or larger areas that support specific vegetation, wildlife and forest settings are important to the Band for a number of reasons, including: cultural, spiritual, gathering and /or historical meanings associated with the area. Some areas within the National Forest proclamation boundary, as identified by band members, have a higher degree of interest than other areas. Changes in management direction

have implications for these important areas. The indicator that will address changes by alternative across the high degree of interest areas is the geographic application of management areas and subsequent changes in management area acres by alternative.

The Superior National Forest is important to the three Bands living in proximity to the Forest. The Bois Forte (Nett Lake), Fond du Lac, and Grand Portage Bands consider many areas in the Superior NF important to them for cultural, historic, traditional, and spiritual reasons. Many areas have been inventoried as heritage sites, and there are many other areas that have not been formally identified; therefore effects will be addressed by implications of allocations to management areas by each alternative.

In addition, there are species of plants and animals that are important to Bands and other people associated with both Forests. By grouping plants and animals into common habitat requirements and tracking on potential changes to these habitats by alternative, the potential effects to traditional and cultural uses can be evaluated.

Indicator 3 – Changes in Forest Access

This indicator addresses changes in forest access using the approximate miles of roads available for passenger vehicle travel across the forest and the amount of roads open for public use.

Indicator 4 – Changes in Community Social Factors

Social attitudes, values, and beliefs are elements used to describe and understand the human dimension of natural resource management. These elements do not lend themselves to quantitative measurements; therefore qualitative information will be examined to gauge these effects such as describing vegetative conditions associated with a Forest Plan Alternative and effects on selected recreation activities. This information is used in conjunction with the biological and physical analyses to better understand how

potential effects on the land extend to and impact human communities.

Analysis Area

The analysis area differs for the indicators.

Indicator 1: The analysis area includes each forest as it changes in character, setting and associated wildlife species.

Indicator 2: Areas are defined for each Forest.

On the Chippewa National Forest, all lands within the entire Leech Lake Reservation are important to the LLBO. (See Figure SSU-5) There is also information indicating that there are lands that are of higher interest within the entire reservation for the Bands in terms of spiritual, gathering and historical meanings. These lands have been identified as such by four different methods: letters dated September 9, 2003 and a letter dated June 7, 1999 from the LLBO, indicating specific areas of importance, and these areas were also later identified as areas of high interest by two separate studies where Tribal members were interviewed in an attempt to better understand the relationship of the people with the resources of the Chippewa National Forest. (Chippewa National Forest Social Assessment, by the Headwaters Regional Development Commission; and Chippewa National Forest – Identifying Functional Communities by Dr. Pamela Jakes) These landscapes that are traditionally and culturally important to the LLBO reflect the analysis area for indicator 2 in the general effects discussion, while the lands within the entire reservation are represented in the cumulative effects section. Lands outside the reservation are also of interest to members of the LLBO. For information on those lands and changes by Alternatives refer to the rest of Chapter 3 of the Final EIS.

The lands encompassed within the Superior NF are important to the Ojibwe Bands of Bois Forte, Fond du Lac, and Grand Portage living adjacent to the Forest. Land allocations relevant to traditional and culturally important areas will be evaluated by alternative.

In addition, gathering forest resources for a variety of purposes and reasons is important to Tribal members

and the general public. The analysis area of this concern is each Forest and how specific identified vegetative and wildlife composition changes across the landscape in each alternative.

There is also general public interest in lands and places within the Forests. Local communities also have an interest in, and at the same time, affect National Forest System land due to the proximity and intermix of private and public lands. The Chippewa NF has very intermixed ownership, while the Superior NF has somewhat less intermixed ownership. Changes in the Forests will be reviewed in terms of implications of management area allocations for traditional and cultural uses by alternative.

Indicator 3: Roads within the forest are important for access regardless of jurisdiction. All roads will be displayed in the analysis area, however, the National Forest is only able to actively make decisions on federally owned roads. Please see the Final EIS, Appendix F for additional road information.

Indicator 4: The analysis area encompasses each Forest in a qualitative narrative discussion.

The narrative will address the potential social effects of various resource management activities under each of the alternatives. Much of the discussion will center on how the level of opportunities afforded to residents and visitors would be affected. Generally, discussions will focus on the concerns most commonly expressed by those responding to Forest Service requests for input in the planning process.

3.9.2.a Affected Environment

Community Social Factors

The affected environment includes the Chippewa and Superior National Forests; 12 northern central and northeastern Minnesota counties of Cook, Lake, St. Louis, Koochiching, Beltrami, Cass, Itasca, Carlton, Aitkin, Clearwater, Crow Wing, and Hubbard; Tribal communities and the Leech Lake, Bois Forte (Nett Lake), Fond du Lac, and Grand Portage Reservations,

associated communities, towns and cities; and rural areas. People within these areas are affected by and are interested in National Forest management decisions that may affect the mix of uses, values, products, and services that the Chippewa and Superior National Forests could provide.

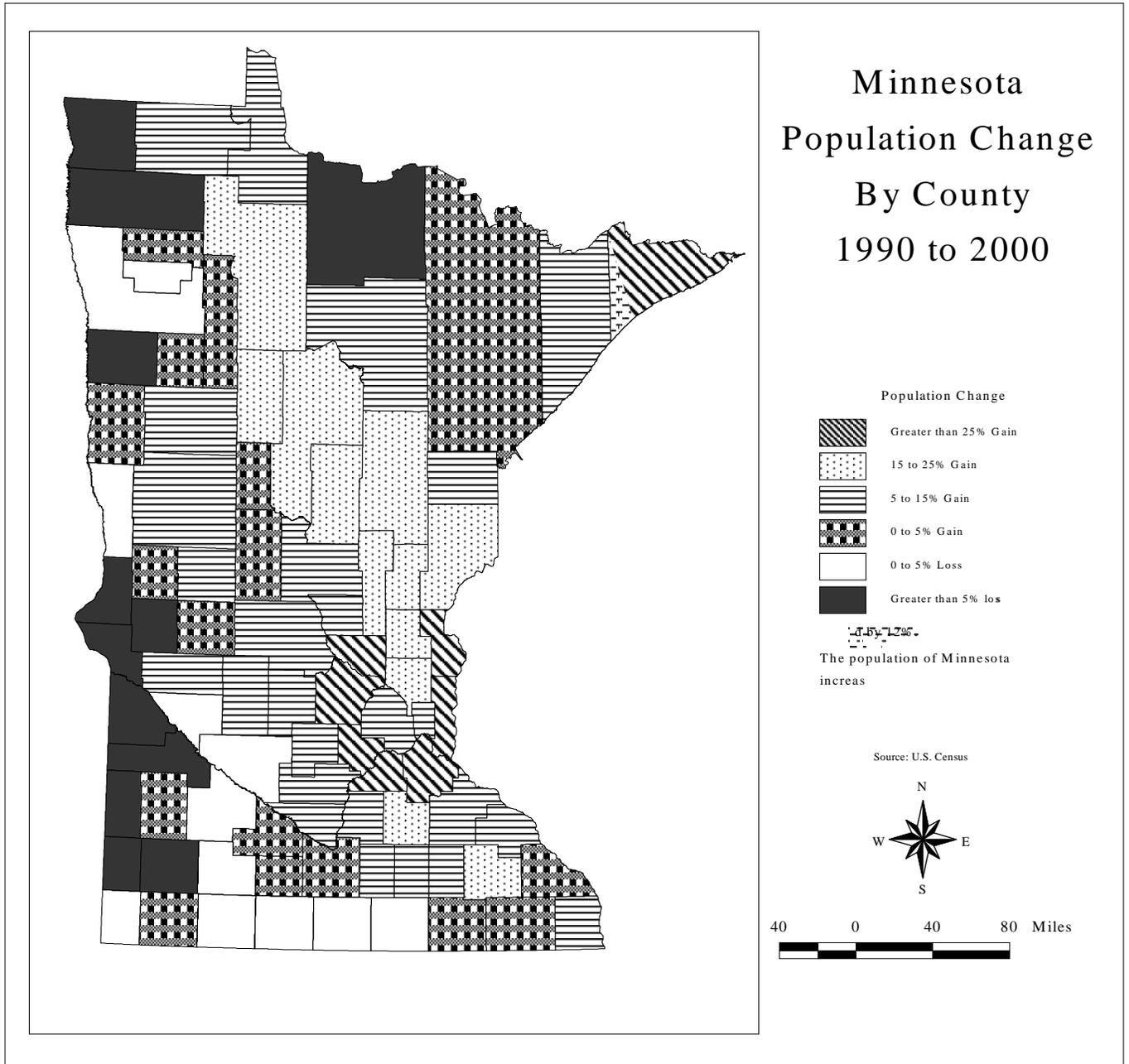
There are six reservations of federally recognized American Indian Tribes within 35 miles of the Minnesota National Forests. Of these Tribes, there are four that are adjacent or located within the Chippewa and Superior National Forests. All are Ojibwe and include: Leech Lake, Bois Forte (Nett Lake), Fond du Lac, and Grand Portage. Responsibilities and expectations of functional government-to-government relationships are in the process of discovery and growth. The Ojibwe have specific economic and social issues and concerns with National Forest management and this revision attempts to address concerns such as Forest access, management of land areas of interest, and natural resources of interest.

The Ojibwe interest in the National Forests goes beyond that of spiritual and cultural to the unique legal relationship that the United States government has with tribal governments. Tribal interests and uses on the Forests are protected through various statutes. The federal trust doctrine requires that federal agencies manage the lands under their stewardship with full consideration of tribal rights and interests, particularly reserved rights, where they exist.

Visitors to the National Forests participate in a variety of activities that utilize most of the forest. Some of the most popular activities include snowmobiling; visiting the BWCAW; viewing wildlife and birds; fishing; driving on roads for pleasure; viewing natural features such as flowers, scenery; and the most popular - just relaxing. Recreational demand for opportunities provided for by public lands have increased over the years and is expected to continue to increase.

National Forest roads are perceived as playing a very important role for visitor and resident's pursuit of activities, although many people are not aware which agency has jurisdiction of the roads in areas of intermixed ownership.

Figure SSU-1. Minnesota Population Change by County 1990-2000. (Chippewa National Forest Social Assessment, pg. 4)



Racial/Ethnic Origin	Chippewa NF 3 County Area	% Total	Superior NF 3 County Area	% Total
White Alone	95,561	86%	205,670	95%
Black Alone	233	0.2%	1,730	0.8%
American Indian	12,678	11%	4,543	2%
Asian	421	0.4%	1,370	0.6%
Other*	90	0.08%	(no data)	--
Two or More*	728	0.7%		
Spanish Origin**	(no data)	--	1,699	0.8%
*available from the Chippewa NF Social Assessment **available from the Superior NF Social Assessment				

Forest Service roads were originally built for managing and accessing timber, lakes, wetlands, wildlife, and other natural resources. Now area residents and visitors use National Forest roads for a range of activities including driving to work, accessing recreation opportunities, and traveling to areas for traditional American Indian practices and uses. On the Chippewa NF, in general, National Forest System roads were more important to American Indian survey participants than non-Native Americans. (Management and Use of Forest Roads on the Chippewa National Forests, Perceptions of Local Residents, Pamela Jakes, North Central Research Station)

Forest Service roads connect the “forest” with the public road system, which serves as the main connection to and between communities across the forest. An increasing number of in-holdings are changing from traditional use and management activities to ad hoc communities and subdivisions, which change the use and traffic pattern of the road. (Chippewa National Forest Roads Analysis Process, HRDC 2002)

Illegal use of closed roads by ATVs, snowmobiles, and other high clearance vehicles add to growing workloads and necessitates additional law enforcement time. Existing and expanded road access, both legal and illegal use, particularly near towns, can add to problems with garbage dumping, vandalism, and other

criminal activities. (Chippewa National Forest Roads Analysis Process, HRDC 2002)

Many people recognize passive values for areas of significance to them on the Forests, independent of any active or consumptive use of the area. Passive use values include existence and bequest values. Existence values are things, places, or conditions that people value simply because they exist, without any intent or expectation of using them. Bequest value is the desire to allow others, such as future generations, to benefit from resources. Some natural resource protection values can also be considered passive use values. For example, many people believe that forests and wildlife have inherent worth in and of themselves, independent of their usefulness to humans, and should therefore be protected. (Forest Service Roadless Area Conservation FEIS, USDA FS, 2000)

Demographic Trends

Social Assessments for the Chippewa and Superior National Forest indicate that year-round residential populations have been increasing from two to nine percent on average over the last decade within the northeastern and northcentral portions of Minnesota. Northcentral Minnesota is expected to see a 10 percent growth over the next 20 years, while northeastern Minnesota is expected to lose approximately 7 percent of the population. (MN Northcentral and Northeast

Regional Landscapes: Current Condition and Trends Assessment)

The historical population change from 1990 to 2000 is indicated on Figure SSU-1. The Chippewa NF is located in the high amenity corridor extending north out of the metro area into the lakes and pines region of north central Minnesota. Higher growth areas are also indicated in the eastern half of the Arrowhead region, while St. Louis County shows a small change in population over the decade.

Population trends also indicate that the future demographics of the area will show a loss (northeastern) or a slight increase (northcentral) of people in the age range of one to 64 years while the 65 plus age group will increase more than 45 to 67 percent over the next 20 years. (MN Northcentral and Northeast Regional Landscapes: Current Condition and Trends Assessment) Population surveys show the variety of racial and ethnic origins in the areas of the Forests. (Table SSU-1.)

At the same time over the next 20 years, shifts will continue to occur in where people live. Trends indicate a population loss in the rural areas with migration to urban areas, while at the same time there is incredible demand for homes adjacent to water. Growth surrounding lakes over time is not only limited to the lakeshore, but continues in ever expanding rings. Many rural-located lakes already have two “layers” of homes around the perimeter. The Superior and Chippewa National Forests include high concentrations of lakes. With the interspersed ownership, especially on the Chippewa NF, an increase in the numbers of homes in the rural/lake areas is expected.

Given the shift toward more people aged 65 plus years; somewhat of an increase in local population numbers; continuing increase in population within the State of Minnesota, particularly the metro area; very high demand for housing in high quality riparian areas; and an increase in demand for recreational and social opportunities for public lands; many challenges exist for National Forest management in northern Minnesota. This analysis addresses current and identified trend issues related to the populations of the local, regional, and national areas. Forest accessibility via roads, changes in areas considered special to

people, and availability of natural resources are all part of the effects discussion.

3.9.2.b Environmental Consequences

Effects Common to All Alternatives

Many of the effects of forest management direction reflected in indicators described in this section would result from changes within the forest character, (vegetation age and size; accessibility; encounters with other people; wildlife species; and state of naturalness), over a long period of time. . Change should be thought of in terms of multiple generations and what the third or fourth generation would experience within the forest in the long term. Immediate change over the next decade would occur in some alternatives for some aspects such as road closures, but the overall forest character would not be abruptly different.

Opportunities for public access to private lands have become and may continue to decrease over the next decades. Forest users may see the result of the potential increase in demand for amenity values on National Forest lands more quickly than vegetation changes. As an example, there may be more people using a recreation site than do currently

Resource Protection Methods

All alternatives incorporate a base set of management direction that addresses social and economic sustainability. This direction consists of desired conditions and objectives that would apply to and limit the effects of any alternative selected for implementation in the Forest Plan. Key examples of this management direction are found under the Economics Section 3.9.1.

Direct and Indirect Effects

Indicator 1 – Changes in Key Themes or Characteristics of Inventoried Special Places

Research results indicate that people value many different areas within the forest, located in a variety of settings. People are concerned that the areas they find special within the Chippewa and Superior National Forests will change due to potential different forest management direction that affects their sense of place.

There are thousands of places across the National Forests that people find special for a variety of reasons that contribute to their sense of place. The key characteristics of special areas relate to the social and recreational opportunities, the aesthetic or scenic quality, and wildlife species associated with the area. Many people feel the Forests offer special areas that are scenic, beautiful, peaceful, quiet, and have little development. They also provide habitat for wildlife, opportunities for recreation, and places for people to get away from normal routines. (Chippewa NF Social Assessment, HRDC 2002; and Superior NF Social Assessment, ARDC, 2002)

Because there are so many special places identified, the Forests are looking with a broad brush at potential effects on key characteristics across the whole of each Forest in the analysis. This indicator is discussed, by alternative, in terms of the recreational opportunity spectrum, scenic integrity levels and wildlife that are associated with early successional habitat or late successional habitat.

The recreational opportunity spectrum indicates a range of recreational settings and character from primitive to highly developed. The scenic integrity levels demonstrate how closely to the state of naturalness, or the degree of deviation from the existing landscape character, forest areas are intended to be managed toward. Early successional habitat is associated with species such as sharptail and ruffed grouse, deer, moose, and bear. Mature habitat is associated with some of the same species such as grouse, moose, deer, and bear along with pine martin, and red-shouldered hawk. Each of these topics is further analyzed and displayed within the final EIS, Chapter 3, prior to this section. For specific

information regarding acres by Forest by alternative, please refer to the wildlife and recreation sections.

General Effects Common to All Alternatives

The direction and change within each alternative would not necessarily be noticeable over the first decade but as time passes over 50 to 60 years or over two to three generations, change in the forest character and setting would occur.

As human populations continue to increase, the character of all special areas are expected to be somewhat impacted by increased numbers of people using the Forests. In different quantities, all alternatives provide for semi-primitive recreational and social experiences that offer solitude, quietness, few encounters with people and machines, and opportunity for challenge. Each alternative would also provide for experiences along the recreational opportunity spectrum towards more development and encounters with people. The priority for management areas of semi-primitive motorized and semi-primitive non-motorized management areas is to offer settings for semi-primitive recreation opportunities. Other management areas, such as riparian emphasis areas, also offer a semi-primitive setting, but may emphasize other elements, (such as vegetation restoration) over semi-primitive recreation opportunities. Inventoried semi-primitive areas in the general forest management area and in the longer rotation management area may also provide for a semi-primitive setting, but secondarily to other priority management expectations such as timber harvesting.

All alternatives consider the importance of scenic quality and manage the visual resources according to the theme of the alternative. In all alternatives the percentage of the Superior NF that is contained within a very high and high Scenic Integrity Level (SIL) is much greater than on the Chippewa NF. This occurs because the Superior NF has more topography, and more land is considered to be in the foreground and middleground, adding to the acres within the high and very high SIL areas.

Different wildlife is associated with different landscape characteristics. Each alternative would result in a varied mix of habitat associated with both early successional species and later successional species.

Alternatives B and D

Relative to Indicator 1, there is a direct association between a very high proposed scenic integrity level and the amount of ROS semi-primitive class land allocation. A much larger area (almost 60 percent and greater in Alternative D for both Forests and in Alternative B approximately 30 percent on the Chippewa NF and 65 percent on the Superior NF) within these alternatives would be managed for forest character and qualities of remoteness, little development or evidence of human management, and would provide for solitude in natural settings under Alternatives B and D. There would still be areas of development and noticeable management, but these areas are relatively much less than the existing condition.

These same alternatives would guide forest management toward an ever-increasing amount of older forests of pine and hardwoods with associated wildlife species. Generally early successional species such as deer, moose, and bear would occur but at potentially somewhat reduced numbers due to habitat changes; while late successional species such as boreal owl and fisher would increase.

People who consider areas of the forest to be special that have large old pine and hardwoods with remote recreational and social opportunities would continue to find their existing special areas attractive, along with other areas of the forest that would gradually change in character and setting toward this description. Other people who are attracted to areas of early successional forests with evidence of human activity and forest management, would perhaps find their special areas and other similar areas disappearing or diminishing as the years pass and the forest matures. As human populations increase and sites associated with early successional forests decrease, those remaining areas may become more crowded with people seeking this type of experience with a resulting change in character.

Alternatives A, C, and F

The recreational setting and proposed scenic integrity levels within Alternatives A, C, and F would look similar to, and provide much of the same recreational and social settings as the Forests now provide. On approximately 2 percent of the Chippewa NF and 34

percent of the Superior NF, opportunity would exist for semi-primitive experiences with associated solitude and remoteness in areas allocated primarily to non-motorized semi-primitive recreation and motorized semi-primitive recreation. The majority of the Forests would provide developed recreational opportunities, with high potential to encounter other people and notice evidence of forest management.

Under the forest management direction of Alternatives A, C, and F, the proposed scenic integrity levels on the Chippewa NF provide for management activities on most of the Forest to be noticeable to the casual observer. On the Superior NF the opposite is true; the majority of forest management would be less or not noticeable to the casual observer.

Alternatives A, C, and F would continue to focus outside the BWCAW on early successional forest habitat and associated species such as deer, bear, moose, ruffed grouse and beaver. Mature forest and associated species would occur in much smaller numbers.

Alternatives A, C, and F would continue to provide a forest setting of early successional forests with noticeable evidence of forest management, and associated wildlife species, inherent to many people's special sites. There may be increased opportunity to find other similar sites as more of the forest is harvested. As human populations increase and sites associated with mature forests decrease, those remaining areas may become more crowded with people seeking this type of experience with a resulting change in character.

Alternatives modified E and G

In relation to Indicator 1, the recreational setting and proposed scenic integrity levels within Alternatives modified E and G provide for a forest that would look similar to and provide much of the same recreational and social settings as it does currently. On the Chippewa NF, areas with semi-primitive character and associated opportunities for solitude and remoteness would compose 5 percent or less of the Forest in Alternatives modified E and G. Semi-primitive character and associated opportunities on the Superior NF would be 35 to 36 percent of the forest, including the BWCAW. The majority of the forest would provide developed opportunities, with increased

potential to encounter people and evidence of forest management.

Alternatives modified E and G each would provide a range of high, moderate, and low proposed scenic integrity levels with higher than existing scenic quality and somewhat more remote settings.

Compared to current conditions, Alternatives modified E and G would move more of the forest towards a mature condition over time, while retaining some early successional forests, resulting in a mix of tree ages within the Forests. Wildlife species would reflect the mixture of early and late successional vegetation, providing for a range of species within the Forests.

In general, Alternatives modified E and G would look much the same over the first two decades on both Forests although individual areas may change due to site-specific management decisions.

In the long run, people who consider areas of the forest special that have large old pine and hardwoods, and that have more remote recreational and social opportunities and associated wildlife would, retain their special areas and perhaps find more opportunity to enjoy similar areas under Alternatives modified E and G. Other people whom find areas within early successional forests with evidence of people and forest management special, would find opportunities diminishing as the years pass and the forest matures. Special area sites may become more crowded and their character would change as more people look to satisfy their needs on fewer sites.

Indicator 2 – Changes in Traditional and Culturally Important Areas

People are concerned that changes in forest management direction could cause changes in areas that are traditionally or culturally important and are related to trust and treaty issues. Much of the discussion regarding Indicator 2 relates to the Leech Lake Band of Ojibwe (LLBO) and Fond du Lac, Bois Forte, and Grand Portage bands. There are other non-Native Americans who are also affected by changes in the resources they consider to be of traditional and cultural importance. Non-Native American concerns are not as well defined through research at this time, and did not emerge through scoping for Plan revision but often are identified for site-specific projects.

There are two components to this indicator. The first is looking at changes across the landscape affecting important areas to Tribal members and other stakeholders. The second component looks at potential changes to plant and animal species that are of interest to Tribal members and other stakeholders.

Management areas provide direction, based on a theme, for future management options, proposals, and decisions. On the Chippewa NF, the allocation to management areas across the areas of high interest, and of federal ownership within the Reservation boundary, indicate the future character of the forest under each alternative. The same concept applies to the more general areas of interest across the Superior NF. Changes in the forest character affect human utilization and use of an area, thereby impacting Tribal culture.

The geographic location of plants is associated with specific landscape ecosystems across the National Forests. Allocations to management areas consistent with the theme of each alternative also affect distribution the of habitat components including as trees, shrubs, and ground flora. Interest by Bands in many areas of the Forests may rely in part on the species inhabiting the area, but given the landscape ecosystem nature of plant habitat, this indicator will look at the emphasis of species across the Forests. There is a vast array of plant and animal species within the National Forests that are subject to traditional use or are otherwise very important to American Indians. Some of the many species commonly viewed as of crucial interest to local Ojibwe and other American Indians includes:

- Deer, bear, moose
- Grouse, waterfowl, eagle
- Walleye, northern pike, whitefish, other game fish, and rough fish
- Beaver and other fur-bearers
- Birch, maple, balsam, pine, cedar
- Berries, mushrooms, hazel, red osier dogwood, teas, sweet grass
- Wild rice

The condition of areas of interest, in terms of vegetative changes, wildlife composition, and management activities affect the sense of connection of the people to the land, the opportunity to continue to

pursue existing activities, and the recognition by other land managers that the condition of these lands relative to a Band is important.

Members of the LLBO as individuals and as represented by their Tribal government have indicated specific areas within the reservation that are of high interest because of the historical, traditional, cultural and spiritual associations with the land and people.

There are approximately 302,672 acres (all ownerships) within the areas of high interest to the LLBO. This includes the area of the Chippewa National Forest that is within the boundary of the Leech Lake Indian Reservation. There are 645,550 acres of all ownerships within the Reservation. Of those acres, 281,052 acres are National Forest System acres. The LLBO is also very interested in management of all the land within the Reservation boundary, including federal, State, county and private ownerships. This broader landscape will be addressed in the cumulative effects discussion. (See Figure SSU-5)

There are also approximately 87,826 acres of the Leech Lake Reservation that falls outside the Chippewa NF boundary and so are not considered within this analysis.

Members of the Grand Portage, Bois Forte, and Fond du Lac Bands are also concerned with the impacts of forest management on areas of cultural significance. These areas can include, but are not limited to, cemeteries and traditional sites for gathering materials. Areas of cultural significance are located throughout the Superior NF, with many of them within or on the border of the BWCAW. (Superior NF Social Assessment, ARDC, 2002)

Effects Common to All Alternatives: Areas of Interest

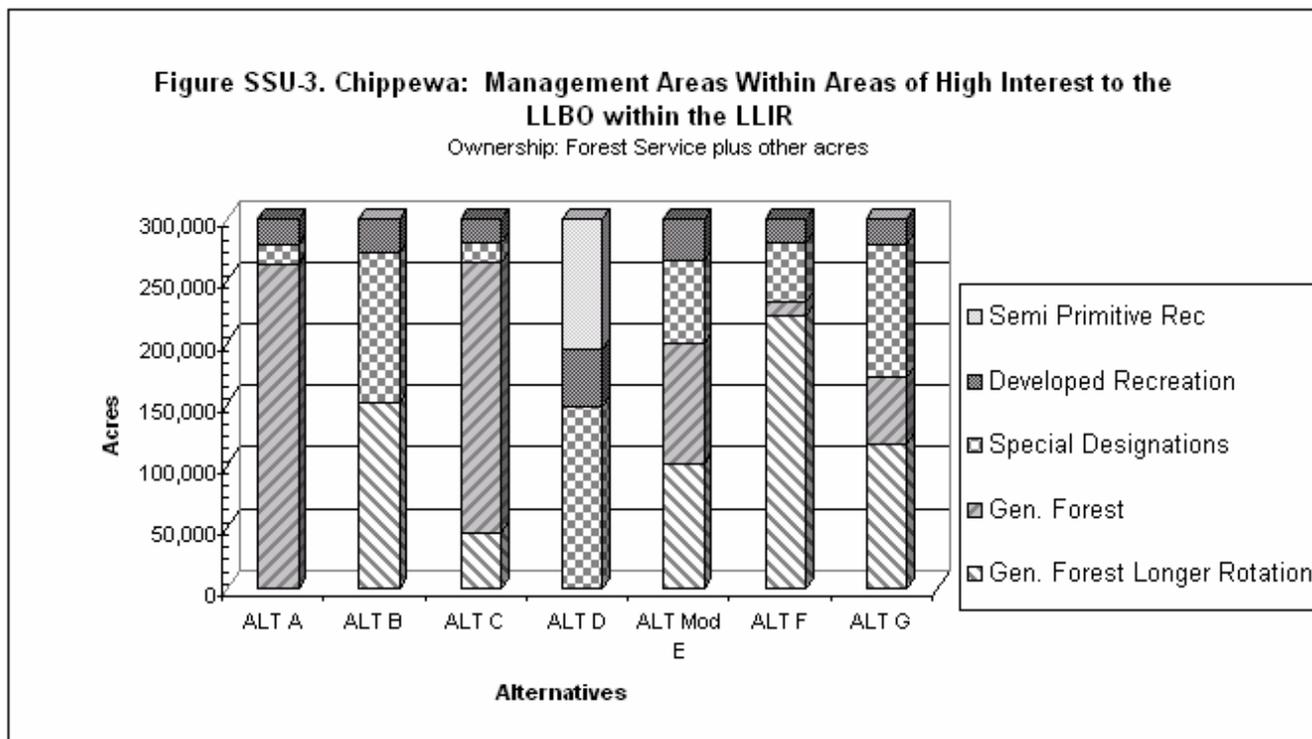
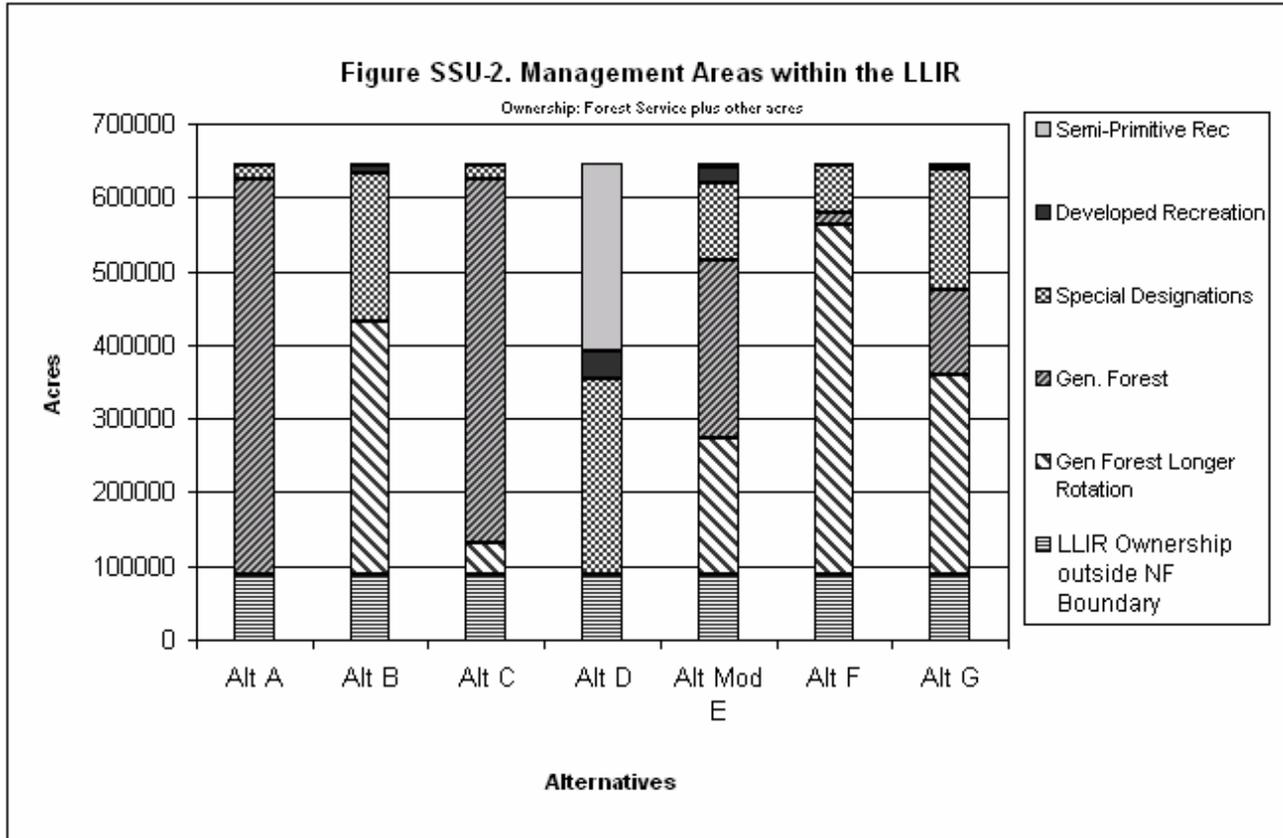
Standards and guidelines under all alternatives would ensure the protection of known heritage resources sites. Areas of hardwood forest would be managed to enhance the sugar maple component within the areas of higher interest to the Bands.

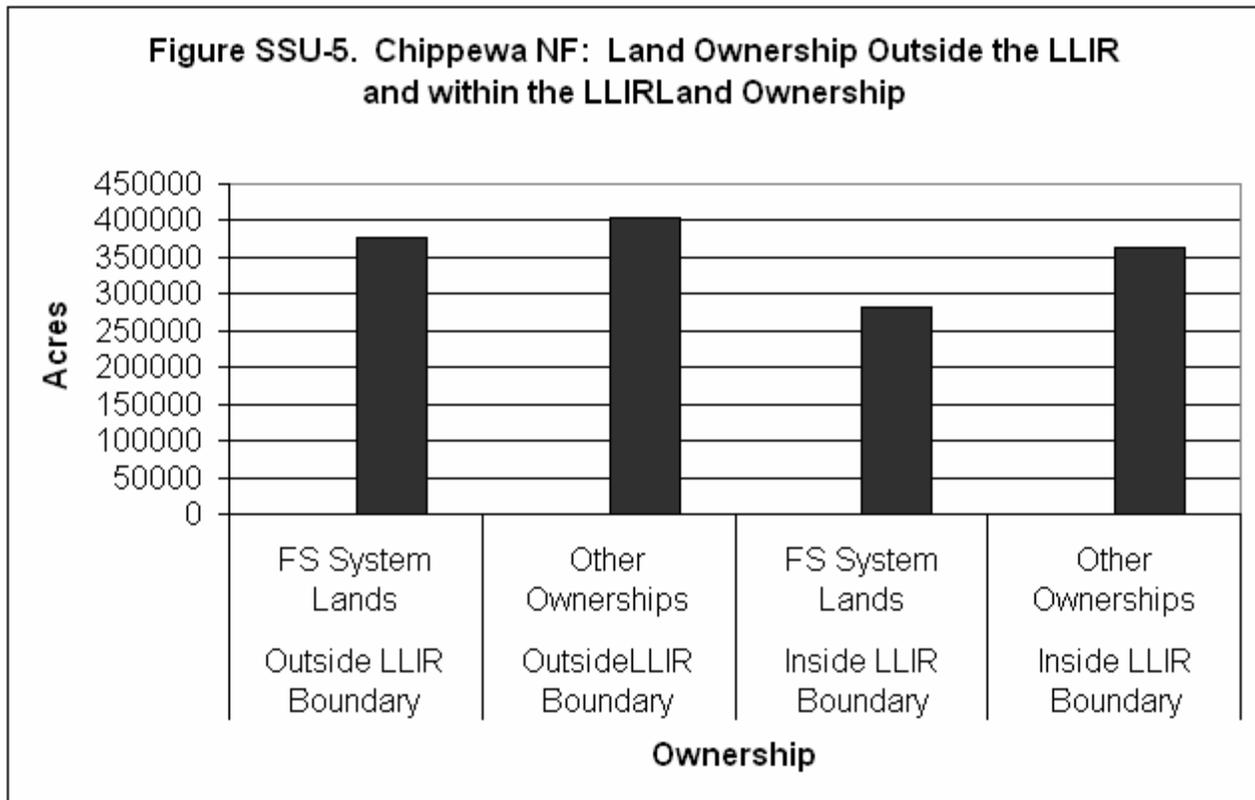
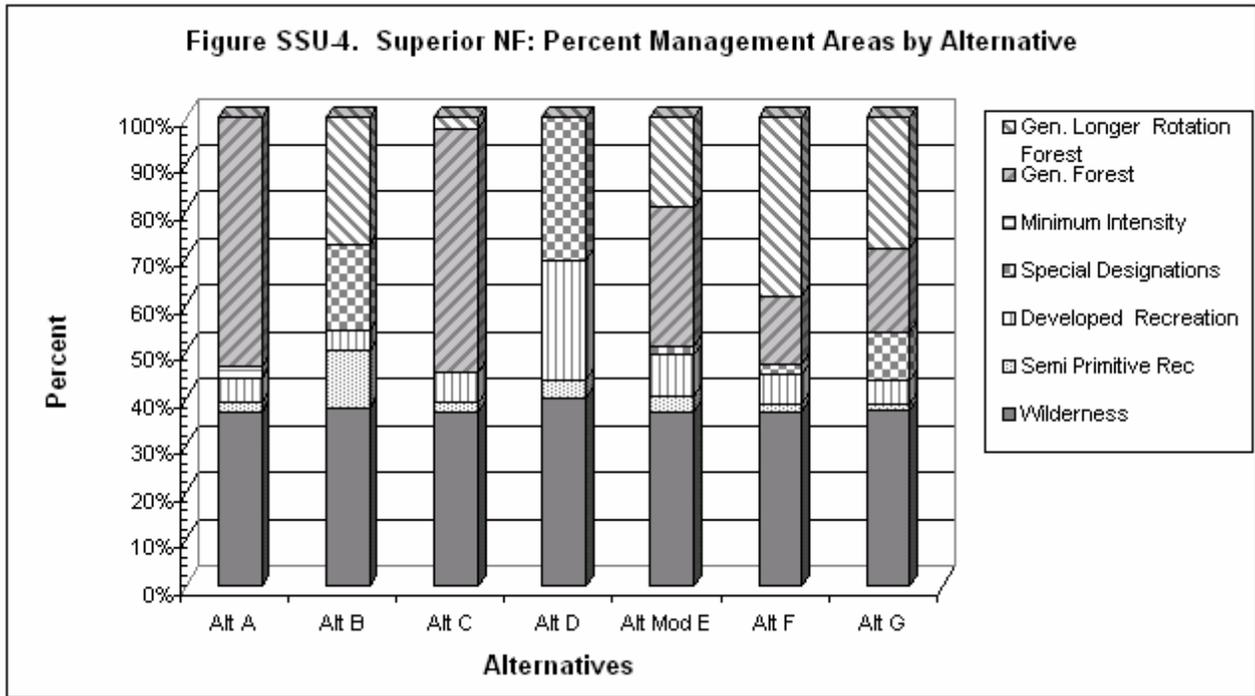
The effects within all alternatives on Chippewa NF lands within the Leech Lake Reservation boundary are much the same as described in LLBO Areas of High

Interest by alternatives. The additional acres of Chippewa NF land beyond those associated with areas of high interest to the Leech Lake Band of Ojibwe expand the analysis area and so indicate more opportunity to access different sites. These additional acres that are also of importance to the Band may reduce the number of people accessing sites in terms of crowding, as there may be more sites available. The National Forest lands within the Reservation may provide a larger quantity of desirable plants and animals than may be found within areas of high interest to the Tribe. This would allow for larger harvests or to spread the same demand over a larger land base. If the latter is the case, there may be less chance of resource impacts.

The BWCAW will continue to be managed as currently outlined in BWCA Wilderness Management Plan and Implementation Schedule, 1993.

Forest management will reflect general trust responsibility obligations through compliance with laws and regulations relevant to Federal land management. The National Forests share in the United States government's trust responsibilities to protect resources on Federal lands located within Indian reservations as well as on Indian territory that were ceded to the US by treaty or other acts.





LLBO Areas of High Interest and Effects on Species (Chippewa NF): Alternatives A and C

The areas of high interest to the Band include the majority the general forest management area under allocations in Alternatives A and C. (See Figure SS-3) This management area contains the broadest variety of uses, including developed recreation, and timber harvesting and is accessible by a number of roads. Providing for a variety of sustainable economic and social uses while maintaining ecosystem integrity is emphasized. Management activities would be very noticeable. Clearcuts would often be used as a harvesting technique, and there would be less of an older growth tree component to the forest than currently. People would continue to be able to access many of the areas of high interest to the Band. Few acres (if any) within of the areas of importance are allocated to management areas such as wilderness, semi-primitive recreation, developed recreation/scenery, research emphasis, or conservation and rare features. These above mentioned management areas would provide a different management direction, such as emphasizing recreation opportunities, management that works toward achieving the range of natural variability, or potential proposed wilderness.

Those that believe that areas of high interest to the Bands should be managed considerably differently than the existing condition or what is proposed under Alternative C, may feel a sense of loss of connection to the lands, and less opportunity to pursue activities associated with other management emphasis areas while those who are satisfied with current management would continue to enjoy conditions on the Forests affecting areas of high interest.

People who use and value areas and habitat communities as they are now may support these two alternatives.

LLBO Areas of High Interest within the Chippewa NF: Alternatives modified E and G

Alternatives modified E and G would provide a somewhat more equal distribution of management areas than other alternatives in areas of high interest to the LLBO. The general forest management area, which emphasizes a broad variety of uses, would dominant allocations; however, a mix of short rotation

and long rotation emphasis would result in a mix of early and late successional tree species with a high percentage of old pines and northern hardwoods. Clearcuts would continue to be used as a management tool, but other techniques would also be utilized. .

Compared to current management direction, there would be greater allocation to management areas other than general forest, including management areas of semi-primitive recreation, developed recreation/scenery, research emphasis and conservation and rare features. These management areas provide for different management emphases, including recreation, scientific inquiry, and representative ecosystem components. Management activities would be noticeable to visitors.

There would continue to be a high level of road access into the Forests, although somewhat less than in Alternatives A and C. People would be able to access the Forest via recreational or passenger vehicle motorized transportation. There would be fewer encounters with other people than in Alternatives A and C.

These alternatives may be most acceptable to those who prefer a mix of mature forest and early successional forest containing aspen and birch; continued access into the forest, with allocations to management areas that emphasize alternative resource values such as recreation.

LLBO Areas of High Interest within the Chippewa NF: Alternatives B and F

Management activities would be noticeable, although to a lesser degree as proposed scenic quality levels would be higher in Alternative B. (See SSU-3) Alternatives B and F emphasize older forests of pine, spruce, and hardwoods across more than 80 percent of the Forest. Alternative F would continue to contain a small number of acres of early successional forest. Clearcutting would still be used as a harvesting technique in both alternatives, although to a lesser degree than Alternatives A, C, E or G.

There would be a considerable number of the areas of high interest to the LLBO allocated to variety of management areas that emphasize goals like recreation and research. Alternative B has approximately twice the allocation to management areas emphasizing

research emphasis and conservation and rare features than Alternative F does.

There would continue to be opportunity to access areas of high interest to the LLBO via roads and motorized trails, although road mileage would be less than the existing system. Generally, people that rely on motorized vehicle access would find less forest motorized access opportunity.

People with lifestyles and culture that accentuate forested conditions that contain a majority of older trees, natural vegetation components, fewer miles of low level maintenance roads with generally fewer encounters with others while in remote settings may tend to find Alternatives B and F acceptable.

LLBO Areas of High Interest within the Chippewa NF: Alternative D

The areas of high interest to the Bands contain management areas of semi-primitive recreation, developed recreation/scenery, research emphasis and conservation and rare features. (See Figure SSU-3) Alternative D contains the narrowest scope of uses. Management activities would be noticeable the first two decades. Clearcuts would not be utilized. The first two decades include timber harvesting, and utilizing intermediate cuts to bring the area closer to the range of natural variability prior to minimal management for the next eight decades. People would continue to be able to access some of the forest on higher standard roads and an appreciably diminishing number of low standard roads.

Beyond the first two decades, there would be a considerable increase in the older tree component of the forest, while areas of young trees would largely be a result of natural disturbances. During the last decades of the planning period, limited amounts of timber harvesting would occur (primarily for ecosystem benefits), and the forest would be managed for remote conditions that accentuate little developed recreational use. Many of the low standard roads that access the forest interior would be decommissioned.

For those who believe that areas of high interest to the Band should be managed drastically differently than the existing condition, in a way that emphasizes change as a result of natural events, and provides

considerably less opportunity for access into the forest; Alternative D may provide satisfaction.

People who believe areas of high interest to the Band should be accessible, and hold a range of opportunities over time; would not find Alternative D satisfactory.

Superior NF: Traditional and Cultural Effects - Alternatives A and C

Under alternatives A and C, on the Superior NF a large percentage of lands outside the BWCAW are allocated to the general forest management area. (See SSU-4). This management area contains the broadest variety of uses, including developed recreation and timber harvesting, and is accessible by a number of roads. A variety of sustainable economic and social uses while maintaining ecosystem integrity is emphasized over both the long and short term. Management activities would be very noticeable. Clearcuts would often be used as a harvesting technique, and there would be less of an older growth tree component to the forest. People would continue to be able to access many of the same areas of the forest as they do now, given the high road miles. Few acres (outside of the BWCAW), if any, would be allocated to management areas emphasizing wilderness, semi-primitive recreation, developed recreation/scenery, research emphasis, and conservation and rare features.

People who are satisfied with the effects of current management on special areas would continue to be satisfied under Alternatives A and C. Those who believe that the Forests should be managed considerably different from the existing condition or what is proposed under Alternative C, may likely feel a continued sense of loss of connection to the land, and find less opportunity to pursue activities associated with other management emphasis areas.

Superior NF: Traditional and Cultural Effects - Alternatives B, modified E, F, and G

Alternatives B, modified E, F, and G vary in theme and management area components, but they contain commonalities within Indicator 2. Each alternative involves a greater range in management area allocations than Alternatives A and C, providing varied opportunities for recreation, plant and animal species habitats, and access into the Forests via roads or trails.

Opportunities to pursue traditional and cultural activities and connect with specific areas of land would continue to be available within these alternatives over time, although to different degrees. Landscapes would gradually change over time. There would not be considerable change during twenty years, but over the course of many generations, the forested landscape would evolve toward more conifers, less hardwoods, and more older trees. Clearcuts would continue to be a common forest management tool. Generally, compared to current conditions, there would be somewhat more access into the Forest.

People with lifestyles and culture that place high importance on forested conditions that contain many older trees, vegetation moving toward the range of natural variability, and generally less encounters with others while in remote settings, may tend to find these alternatives acceptable. Over a long period of time, many areas of the Forests would not have the same character as they do now, which would change people's experiences and perhaps sense of attachment to the land if based on current conditions of vegetative and associated social components.

Superior NF: Traditional and Cultural Effects - Alternative D

Much of Alternative D contains management areas of semi-primitive motorized and non-motorized recreation, developed recreation within a scenic landscape, research emphasis and conservation and rare features. This alternative contains the narrowest scope of uses. Management activities would cease except for actions of minimal management. People would continue to be able to access the Forests on higher standard roads and a considerably diminished number of low standard roads.

As time passes, there would be noticeably more of an older tree component to the forest, while areas of young trees would be a result of natural disturbances. During the last decades of the planning period, there would be very small amounts of timber harvesting (primarily for ecosystem benefits), and the Forests would be managed for remote conditions fostering little developed recreational use, and many of the low standard roads that access the forest interior would be decommissioned.

For those who believe that the Forests should be managed appreciably different from the existing condition, in a way that emphasizes change as a result of natural events, and provides considerably less opportunity for access into the forest, this alternative may provide satisfaction. Areas of cultural interest may not be accessible utilizing the methods that currently exist, such as passenger vehicle or recreational motorized vehicles. Many landscapes would look much different from the way they are now, with a more remote character and older coniferous forests.

Species of Interest: Effects Common to All Alternatives

Standards and guidelines under all alternatives would ensure the protection of Threatened, Endangered and Sensitive species.

Sustaining viable populations of plants and animals that may be perceived as diminished or at risk is addressed within all alternatives.

Habitat changes caused by implementation any of the alternatives is not expected to cause considerable population fluctuations over the next two decades.

Wildlife species of interest to Bands and Other People: Effects Common to All Alternatives

Wildlife species of crucial interest to Bands and many others in the general public include deer, bear, moose, grouse, waterfowl, eagle, walleye, northern pike, whitefish, other game fish, rough fish, beaver and other fur-bearers. These species rely on a mixture of vegetative ages and composition within the forest. None of these species would be at high risk for viability loss under management direction in any of the alternatives. Waterfowl habitat would be maintained or slightly enhanced across all alternatives. Habitat change caused by National Forest management is just one component of population influence. Other factors that influence wildlife populations include predation, weather, insects, and disease.

Fisheries habitat quality and changes in fish populations are addressed under Indicator 4 within the final EIS Social Sustainability section and also within the Wildlife section of the final EIS, Chapter 3. In general, habitat quality would be maintained or

enhanced under all alternatives with the Minnesota Department of Natural Resources continuing to be responsible for management of fish populations.

Over the long term, each alternative would maintain a range of forest habitats, but in varying quantities. Those alternatives that have somewhat fewer or no clearcuts (Alternatives B, D, and G) would over time not support as large of a population of upland game birds, deer, and moose due to habitat changes, but the species would remain a viable component of the Forests.

People that rely on these species of interest would find viable populations based on habitat conditions resulting from each alternative. The opportunity to successfully harvest or observe these species may change over time and location due to site-specific management or natural occurrences.

Plant Species of Interest to Bands and Others: Effects Common to All Alternatives

Plants that are of crucial importance to Tribes and others in the general public include: wild rice, paper birch, maple, balsam, pine, cedar, ash, basswood, berries, mushrooms, hazel, red osier (willow), teas, wild rice, and sweet grass. These plants are used for a variety of purposes, including craft making, food, drink, and to meet spiritual needs and uses.

Under all alternatives, tree species of importance would remain fairly constant on the Chippewa and Superior National Forests, without considerable change during the first two decades. During the last eight decades of implementation quantities of these species may change.

Lowland vegetation is considered to be cedar and lowland conifer (black spruce and tamarack). Cedar would not be harvested due to the inability to consistently regenerate this species. Changes in cedar-forested areas would occur as a result of succession, mostly via natural events.

The spruce/fir (balsam) component of the forest would remain fairly constant within all alternatives on both the Chippewa and Superior National Forests.

Over the long term, within both the Superior and the Chippewa NF, under Alternatives B, D, F, and G, the

amount of white pine would increase considerably. Modified Alternative E on the Superior NF would also increase white pine substantially. Other pines such as jack pine and red pine would not change substantially across the Superior NF alternatives; while on the Chippewa NF, jack pine abundance remains fairly constant and red pine would increase considerably in Alternatives B, D, F and G.

Over the planning horizon of 100 years, similar quantities of paper birch would remain under all alternatives. Northern hardwoods would remain within quantities similar to the current condition on the Superior NF and in Alternatives A, C, and modified E on the Chippewa NF. In Alternatives B, D, F and G on the Chippewa NF the hardwood component would increase.

The shrubs and ground cover that are of interest, such as hazel, berries, mushrooms and sweetgrass, would also remain fairly constant in supply although the geographic location would most likely change. The plants associated with riparian areas and emergent plants (wild rice, sweetgrass, red willow, some teas) would not be affected by most alternative management decisions. However, in Alternatives B, D, modified E, and G the plant habitat may be actively enhanced more so than in Alternatives A, C, and F.

Hazel and mushrooms grow in association with many varieties of overstory habitats, and would generally not be affected by management under differing alternatives.

Berries are also associated with a variety of habitats and management practices. Berries associated with openings or disturbance, such as fire, would be available in larger quantities in Alternatives A, C, modified E, and F. Alternatives B and G would continue to support berries due to natural disturbances, some regeneration cutting and fire, but in lesser quantities. Alternative D would support the least amount of berries, as harvesting disturbances would be minimal to none, and fire activities would be due to natural causes or very minimal management ignited applications. Berry species not associated with disturbance may remain the same.

People that rely on all the above plant species of interest (ground cover and trees) would, in general, be likely to find a steady supply within Alternatives A, C,

modified E, and F. A diminishing supply would occur in Alternatives B and G, while a minimum would be available in Alternative D. Locations of available plants may change due to management or natural occurrences.

Indicator 3 – Changes in Forest Access

Access into the National Forests is important to a variety of people including forest visitors, people that make their living from the forest natural resources, and those that live in the area. People use roads, trails, and cross-country travel to drive to and from work, sight-see, drive for pleasure, and access areas for camping, fishing, hunting, hiking, and other recreational purposes; and to access areas for traditional and cultural practices and uses.

Many individuals of the Leech Lake Band of Ojibwe have expressed concern that access restrictions across the forest may not be applied fairly. The perception has been expressed that when gates are used as road closures, some people and/or governmental agencies continue to have forest access, while denying access to others. People with keys may drive vehicles down the road, while people with ATV's would just drive around the gate and down the road. (Management and Use of Forest Roads on the Chippewa National Forest – Perceptions of Local Residents, Dr. Pamela Jakes, North Central Research Station, 2000)

Within the broader community of the Chippewa and Superior National Forests, an additional concern regarding road closures is the perceived lack of communication and consultation with local residents and communities regarding which roads to close and why they are being closed. Some people support closing roads, while others would prefer more access (Management and Use of Forest Roads on the Chippewa NF – Perceptions of Local Residents)

Roads are used by a variety of people with vehicles to gather species and/or participate in a practice that is traditionally, spiritually, or culturally important. Access to specific areas containing these species or practice traditional, spiritual, or cultural opportunities are important to many people.

Roads are also important to many people to be able to access an area that is important to them as a special place. These places provide opportunity to “get

away”, along with scenic beauty, sometimes little development, solitude, wildlife habitat, recreational opportunities, within large areas of public lands. (See discussion under Indicator 1 and 2)

Roads also provide access for illegal uses such as garbage dumping, vandalism, and other criminal activities. Generally speaking unencumbered road access provides greater opportunity for unlawful activities. Less access, particularly in the winter, may mean less opportunity for crimes (such as thefts within seasonal homes). Garbage dumping, one of the most common violations as well as illegal gathering of forest products, occurs mostly on local Forest Service access roads. In some instances, gates are used to stop illegal use of roads. Yet closing these roads often leads to gate violations with associated resource damage. (Chippewa NF Roads Analysis Process, HRDC 2002)

Questions of fair and equal access to culturally important sites and special areas are often associated with Objective Maintenance Level (OML) 2 and 3 roads. OML 2 roads are drivable by high clearance vehicles and OML 3 roads are drivable by a prudent driver in a standard passenger car.

In the past, there have been a few OML 1 roads that have been used to access the Forests. The Draft Forest Plan proposes that new OML 1 roads be closed to all public and administrative travel.

Driving for pleasure through the Forests is one of the most popular recreational activities. Most of this travel occurs on existing OML 3, 4, and 5 roads.

People with lifestyles that incorporate recreational opportunities including seeking solitude in a forested setting or people that utilize motorized vehicles for recreational purposes also are concerned with the amount of access open into the Forests. Areas with limited road and motorized trail access provide for benefits associated with solitude, quietness, and physical challenges. Areas of the forest that have roads and motorized trail access provide benefits associated with the use of vehicles and longer travel distances. Please see the discussion of alternative effects of this specific concern under the recreation discussion (Section 3.9, Indicator 4).

Roads intended for access only one time to specific areas of timber sales, and decommissioned thereafter, are defined as temporary roads. Roads intended for more than one time use are defined as National Forest System roads. Examples of these roads are: roads that are used to efficiently and economically access timber sales more than once, roads that provide access into recreational sites, and roads that access other ownerships.

Please refer to Appendix F for a complete description of the National Forest road system for both Forests.

Chippewa NF Road Summary

There are currently 2,646 miles of existing OML 1, 2, 3, 4, and 5 roads on the Chippewa NF. The maximum National Forest System road miles that would be constructed over the ten decades is less than one percent of the existing road system, except in Alternative D where no new road construction is proposed.

There would be approximately the same amount of roads available for passenger travel in all alternatives. These roads are the OML 3, 4, and 5 roads. In addition to the existing 2,646 total miles of roads, there would be between 10 and 30 miles of newly constructed OML 1 road in the first decade; the remainder of OML roads in the second decade. Alternatives B, F, and G would continue to construct less than five miles of road each into the third decade. Alternative D includes no proposed road construction and would decommission approximately 37 percent of the roads by the end of the second decade.

There are approximately 200 miles of anticipated OML 1 road to be decommissioned over the first decade in all alternatives. Alternative D also proposes to decommission a total of approximately 1,000 miles of Forest Service system OML 1 and 2 roads. These OML 1 and 2 roads are generally not drivable by passenger vehicles.

Currently the Chippewa NF has approximately 485 gates that close 464 miles of roads.

Superior NF Road Summary

There are currently 2,406 miles of existing OML 1, 2, 3, 4, and 5 roads on the Superior NF. On the Superior

NF, the range of National Forest System (OML 1) road miles that would be constructed in all alternatives over the planning horizon of 100 years ranges between an additional 37 percent (Alternative B), and 49 percent (Alternative C) miles of roads. Alternatives A, B, modified E, F, and G are very similar to Alternative C in intended road construction miles. Alternative D includes no new road construction and decommissions approximately 50% of the OML 1 and 2 roads.

The roads available for passenger travel are the OML 3, 4, and 5 roads. There would be approximately the same amount of roads potentially available for passenger travel at the end of the tenth decade in all alternatives except D. Alternative D decommissions 867 miles of OML 2 roads, some of which may have been drivable by passenger vehicles.

The Superior NF has approximately 65 gates that close 90 miles of roads.

Effects Common to All Alternatives

There would be OML 1 and 2 roads decommissioned and closed in each alternative. There would be roads constructed in each alternative except for Alternative D. There would be roads that are closed and open to public vehicle access in all alternatives. The following narrative further describes the effects.

Standards and guidelines under all alternatives would address expectations for road closures and decommissioning necessary to protect the forest setting and the physical and biological resources, such as soil erosion or designated threatened/endangered species and its habitat.

Forest Service regulations require that temporary roads built for timber harvesting be decommissioned after the sales are closed. Due to limited budgets, ineffective closures, etc, the Forests have not always closed all the temporary roads in the past. The expectation within the Final Forest Plans is that most unclosed historic temporary roads and all new temporary roads would be decommissioned. Some historic temporary roads that are currently used by vehicles on the Superior NF may be put on the road system and maintained appropriately.

OML 1 roads (low standard roads constructed with a natural surface such as sand) are not built for

passenger vehicle traffic and would be closed to public and administrative travel with effective closure techniques, such as berms. These roads would generally not be closed with gates.

Some existing OML 2 roads may be closed as determined at a site-specific decision level. OML 2 roads are not constructed for passenger vehicle use and most are not drivable by a passenger vehicle, but there are exceptions and some OML 2 roads are drivable.

Objective Maintenance Level 3, 4, and 5 roads are built and maintained for passenger and commercial vehicles that travel on paved and graveled surfaces. These roads, miles and maintenance level, would generally remain the same across all alternatives.

OML 2, 3, 4, and 5 roads and other roads providing access to private property would likely remain at the same objective maintenance level and the quantity of these roads would generally not be reduced on either Forest. These roads are generally open for passenger vehicle travel.

There is likely to be a reduction in the miles of roads on each Forest open for public use under all alternatives in response to the national emphasis on an economically efficient and maintainable National Forest road system and in response to Fish and Wildlife Service guidelines for management of lynx analysis units. The reduction includes roads that are decommissioned and roads that are closed to public vehicle use.

On the Superior NF in all alternatives, except Alternative D, there would be approximately 86 miles of unclassified roads designated for decommissioning within the first decade and 82 miles of unclassified roads remain awaiting a decision on appropriate management. On the Chippewa NF, there would be approximately 200 miles of roads decommissioned in the first decade. Since these roads are not generally drivable by passenger vehicles there would be little change in the total access that people now have.

Roads that are closed with devices such as gates and berms may increase in all alternatives. These closures are in place for a variety of reasons, including physical and biological resource protection. After site-specific analysis the management of some of these existing roads maybe changed, (including possible

decommissioning), the closure may be removed, or may remain in place as per the revised Forest Plan for any of the alternatives. If closures are left in place, or new roads closed, there may continue to be questions related to the fairness of the lack of opportunity for community members to use the closed roads.

Some roads may become designated trails for recreational motor vehicles, including ATVs and snowmobiles. These roads/trails designations would be determined at a site-specific level, utilizing applicable analysis processes. If the road were historically drivable, trail designation may change passenger vehicle forest access opportunities.

As temporary and OML 1 and some 2 roads are closed or decommissioned, there may be more people concerned that the Forests are only accessible to those physically able to get to areas of importance via non-motorized means. Conversely, people desiring more non-motorized areas would find an increase in these opportunities.

The opportunity to access areas for gathering forest materials or to get to special places may decrease somewhat for passenger vehicles if some OML 1 and 2 roads are decommissioned or closed. Some people would be displaced and may or may not seek other areas as substitutes, while other people utilizing non-motorized access may then use the area.

As more roads are temporarily or permanently closed, there may be a reduction in Forest violations that occur, such as garbage dumping. At the same time, there may be an increase in illegal access violations. If gates were used to close roads, there would still be a concern about the fairness of Forest access by selected legal users.

Alternatives A, C, and Modified E

These alternatives would intensively manage the forests for timber harvesting, and for many developed recreational opportunities, and add few or no areas that have designated limited motorized access like the non-motorized semi-primitive recreation and recommended wilderness management areas.

There would be approximately the same as the current condition amount of OML 3, 4, and 5 roads available for passenger travel. OML 2 roads miles remain

approximately the same as the current condition on the Chippewa and Superior National Forests. However, some OLM 2 roads may be closed to public travel to meet threatened and endangered species requirements. OML 1 road miles would decrease from current levels by approximately 170 miles on the Chippewa NF. The Superior NF would add approximately 1,150 miles of OML 1 road miles. All new OML 1 roads would be closed to vehicle access with an appropriate closure device that was preferably not a gate.

People would continue to be able to access traditionally important sites and areas from some OML 2 roads and OML 3, 4, and 5 roads. There would be few areas that are designated as non-motorized, limiting opportunities for people desiring that experience.

There would continue to be gates used as closure devices on some OML 1 roads and possibly more on OML 2 roads, perhaps perpetuating the issue of fairness of public access.

Alternatives B, F, and G

These alternatives incorporate more areas of special ecological concern and less developed recreational opportunities in areas that would have somewhat more limited access. The future management actions and themes provide less road density in semi-primitive recreation, research emphasis and conservation and rare features management areas. Within these management areas and based on site-specific analysis, there would be OML 1 and 2 roads closed to passenger vehicles and/or decommissioned. Road density would become greater in other areas of the Forests as OML 1 roads for timber harvesting are constructed.

There may be people affected and displaced from areas formerly available for motorized travel. Other areas that continue to be accessible may become more crowded. Areas that offer specific benefits not found elsewhere may no longer be accessible to those using motorized travel. People interested and able to access areas using non-motorized methods would find that more areas are available. Those who choose to pursue activities elsewhere may experience a change in experience, (based on a different location), which may be positive or negative. People who are not able to find a similar traditional, cultural and/or recreational experience, species to harvest, or special place would

likely experience feelings of frustration, loss, and decreased quality of life.

There would continue to be closure devices on OML 1 and some 2 roads that allow for administrative use. These would continue to contribute to the issue of fairness of public access.

Alternative D

Alternative D provides for the majority of both Forests to become non-motorized, via semi-primitive classification and/or potential eventual wilderness designation. Timber harvesting is drastically reduced on both Forests, essentially ceasing after the first two decades.

As a result, the amount of OML 1 and 2 roads on the Chippewa NF would be reduced, (through decommissioning), by one-half over the course of the second decade. OML 3, 4, and 5 road mileage would likely remain unchanged from the current conditions.

The Superior NF would reduce and decommission OML 1 and 2 road miles by one-third over the course of ten decades. Level 3, 4, and 5 mileage would likely remain unchanged from current conditions.

Remaining OML 2 roads would remain open or be closed based on site-specific decisions. There may be fewer gated roads, contributing to the sense of “fairness” of access to everyone.

Many people may be displaced from traditional gathering areas and special places. Lifestyles may be dramatically altered, as much of the Forest would be less accessible via the low standard roads. Other people that value and may be able to access areas via non-motorized means would find many new places available on the Forests.

Indicator 4 – Changes in Community Social Factors

This indicator reflects a variety of topics that individuals and communities have personal interest in which would be affected by the management themes of the alternatives, including different emphasis on timber management, recreational opportunities, wildlife habitat, vegetative composition, and forest access.

These topics explore the effect of natural resource decisions on people and their social experiences and expectations rather than focusing on resource-specific information such as acres of harvest, acres of timber types, and species viability. Analysis of these individual topics is presented in more detail in other sections of this document. The purpose of this discussion is to focus within the context of community and individual interests.

Some of the following topics are the same as the issues analyzed in detail elsewhere in this document. Other topics are issues that have been identified from sources such as social assessments, county plans, and historical social information.

Social Factor 1: Plans, Rights and Interests of Others

The Generic Environmental Impact Statement Study on Timber Harvesting and Forest Management in Minnesota states, "... To the degree that the USDA Forest Service, the NIPF group, the counties, the MNDNR, and other interested parties, such as the forest products industry, conservation groups, the tourism and resort industry, etc., cannot go forward under well-articulated and common visions and goals, guidelines, and directions, the state's forest resources run the risk of inadequately providing for the values and services needed by society."

The Chippewa and Superior National Forests contribute to the natural resource, social, and economic products and services within the context of the State of Minnesota, Reservations, and local communities. Knowledge of the plans, rights and interests of other land managers and property owners, including governmental and quasi-governmental agencies, Tribes, and individuals, is a desired condition for effective and efficient management of the National Forests. Opportunities to work cooperatively toward the objectives of all stakeholders with interest in the Chippewa and Superior National Forests need to be recognized and acted upon.

To ensure the rights of sovereign Tribal governments are fully respected, the President has directed agencies to operate within a government-to-government relationship; to consult with Tribal governments prior to taking actions affecting resources in which Tribal

governments may have an interest; to assess the impact of plans, projects, and programs to assure that Tribal governments' rights and interests are considered; and, to remove any procedural impediments to working directly and effectively with Tribal governments.

A definition of sovereign status has been included in the EIS and Forest Plan glossaries: For Indian tribes that have Federal recognition, this is the inherent governmental power from which all specific political powers are derived. Indian governmental powers, with some exceptions, are not powers granted by Congress, but are inherent powers of a limited sovereignty that have never been extinguished. Congress has the authority to limit or abolish tribal powers. However, without congressional action, a tribe retains the inherent right to self-government and no state may impose its laws on a reservation. (Forest Service National Resource Book on American Indian and Alaska Native Relations) This guiding document is considered an appropriate source for a definition.

Regarding trust responsibility, the National Forests share in the United States governments' trust responsibility to protect resources on federal lands located within Indian reservations as well as on Indian territories that were ceded to the United States by treaty or other acts. The Forest Service does not have a direct fiduciary trust responsibility for lands it administers on the National Forests of Minnesota because it holds no lands or fund in trust accounts for an Indian tribe. In lieu of a specific fiduciary trust responsibility the Forests satisfy general trust responsibility by following federal laws and regulations designed to protect cultural and natural resources under National Forest management. Examples of such laws include the National Forest Management Act, the National Environmental Policy Act, the Endangered species Act, the Clean Water Act, and the National Heritage Preservation Act. All of these laws are intended to protect important natural and cultural resources upon which the nation and all of its citizens depend.

Many of these laws and regulations include specific provisions for consulting with native Indian Tribes. The treaties are not specific regarding hunting, fishing and gathering rights. The courts have established that those rights can be exercised without regulation by State government. However, there is no direction

established as to how those rights are maintained in the context of National Forest management within the 1855 treaty area.

The US Fish and Wildlife Service, the State of Minnesota and the Leech Lake Band of Ojibwe have responsibilities for specific wildlife species management. Except for federally listed species and migratory birds, the State of Minnesota solely, and also in co-management of some species with the LLBO, have responsibility on National Forest lands for species populations, while the National Forests have responsibility for habitat management on forest system lands. Management Indicator Habitats (MIH) and Management Indicator Species (MIS) have been identified as the tool to analyze alternative forest management and its subsequent effect on associated species within the Final EIS. Appendix B of the Final Plan describes sensitive Federal, State and Tribal species in terms of MIH and the analysis of the effects of Alternatives.

Treaty and trust responsibilities will be fulfilled as the Forest Plan is implemented under existing treaties, laws, regulations; by coordination of management activities with the appropriate local, State, or tribal governments, as well as with other federal agencies; by actively collaborating with interested tribal governments, organizations, groups, and individuals, manage the Forests for multiple uses; implementing also the desired conditions, goals, objectives, standards and guidelines of the Final EIS and Forest Plans.

Monitoring the success of the Final Forest Plan implementation results are also outlined in Chapter 4 of the Final Forest Plan.

The Minnesota Regional Landscape Committees are quasi-governmental and have developed vegetation-related goals that incorporate all the forests of northern Minnesota. See the following information. The desired future condition of the regional landscape committees envisions a forest that:

- Approximates/moves toward the range of variability (the spectrum of conditions possible in ecosystem composition, structure, and function considering both temporal and spatial factors) for plant communities naturally living and reproducing in NE Minnesota

- Has spatial patterns (size and location of openings) that are consistent with the ecology of NE Minnesota
- Provides diverse habitat to maintain natural communities and viable populations (the ability of a wildlife or plant population to maintain sufficient size to persist over time in spite of normal fluctuations in numbers) for the species native to NE Minnesota

The Committee recognizes that the desired future forest condition is a long-term condition and can only be achieved by moving in incremental steps giving full consideration to the social and economic impacts that may occur. All alternatives provide for working toward achieving these goals. The means by which the goals are accomplished varies by alternative.

Members of other governmental and quasi-governmental agencies have expressed concerns about National Forest policy, land allocation, and products as they relate to alternative theme and management direction. Differing policy on recreation related activities may cause confusion among visitors, and enforcement of differing policies may be more difficult. There is also an expectation of the amount of National Forest managed land to be managed for timber commodities in the Northeastern and Northcentral landscapes that is currently under treatment. These expectations and/or rules and policy applications may differ from proposed alternatives and may create inequitable pressures on other landowners to contribute more or less to the demand for natural resource products and recreational opportunities.

Additional information about the effects of the Minnesota General Environmental Impact Statement and the Northcentral and Northeast Landscape Regional Committee's Goals and Strategies can be found in the cumulative effects discussion of the Draft EIS.

Further information about recreation-related consistency in policies may be found in Chapter 3, Recreational Motor Vehicles, in the Draft EIS.

Social Factor 2: Watershed Health, Riparian Area Management and Fish Habitat

Members of the public and local and Tribal governments have expressed concerns about the health of the watersheds and water quality. Effects on values such as the quality of boating, swimming, other recreational activities, and aesthetics affect human utilization and enjoyment of the forest, thereby impacting local lifestyles. Harvesting wild rice and/or fishing for traditional, cultural, spiritual, subsistence, and recreational purposes are an integral part of the local lifestyle. The condition of habitat for species such as walleye, northern pike, whitefish, and other game and rough fish is important to the continued pursuit of these activities. In addition, economic impacts as a result of changes in the management of these resources may affect lifestyles and stability of local economies. Additional information regarding potential affects of alternatives on watershed health, riparian area management, and wildlife species can be found in the Final EIS Sections 3.3, 3.6, 3.7.

Social Factor 2: Effects Common to All Alternatives

Standards and guidelines under all alternatives would ensure that water quality meets or exceeds state water quality standards. Management activities would be designed to minimize effects to or improve conditions of, soil, water, and vegetative structure within riparian areas. Therefore tribal, aesthetic, recreational, and economic values desired by forest users would be maintained or enhanced.

Social Factor 2: Alternatives B, D, modified E, and G

These alternatives provide for a proactive approach to riparian area management. Under this approach, steps would be initiated to directly address riparian area concerns and implement measures to address existing concerns and ensure continued riparian system health. Under these alternatives management would actively seek to enhance and improve the many of the values sought by the public and Tribe, thereby contributing to the maintenance of this component of local lifestyles and economies.

Social Factor 2: Alternatives A, C, and F

These alternatives provide mitigative measures in response to proposed management activities in riparian areas. As a result, measures to improve riparian area conditions would be incidental to other management

activities. Although management activities would not be allowed to degrade the values desired by the Tribe and public, management activities would not be actively initiated to address existing problems or enhance conditions. This component of local lifestyle would likely be maintained, but not enhanced.

Social Factor 3: Fire and Air Quality Management

As the population grows, more and more people come to the Forests to seek refuge from urban living. In addition to those who come to the Forests for recreation, many people seek homes in a forested environment. Areas adjacent to National Forest System lands provide protection from development in a rural, forested atmosphere, with privacy that suburban living does not offer. Homeowners choose residences in these areas for their wildness, often retaining the naturally occurring vegetation rather than implementing a more planned landscape. Additionally, numerous recreation residences are permitted on National Forest System lands. While such environments are very pleasing aesthetically, they may leave these homes vulnerable to loss from wildfire. Outside of the BWCAW and immediately adjacent areas, the relative risk of a large scale, catastrophic wildfire is not great on the Chippewa or Superior National Forests.

Wildland fires in the Forest can pose a considerable threat to human life, private property, and lifestyles of adjacent landowners or owners of permitted recreation residences. Burned landscapes can alter the scenic quality of the property and perhaps affect property values in the short-term.

There are other risks from wildfire associated with community members and visitors, and the natural resources. Smoke from wildfires negatively affects air quality in surrounding communities. Favored recreation sites can be dramatically altered for the lifetime of the user. Erosion and sediment transport into local streams can adversely affect water quality for downstream communities. All of these factors can lead to changes in customs and lifestyles of those who recreate or live near the forest for both the short and long-term.

Social Factor 3 - Effects Common to All Alternatives

Management ignited (prescribed) fire would be implemented to some extent under all alternatives. Although prescribed fires would adversely impact air quality in the short-term, implementation would be planned and timed to assure that adequate conditions for smoke dispersal exist to minimize impacts to local communities. Additional information regarding potential affects of alternatives in terms of fire and air quality is found in the Final EIS Section 3.6.

Social Factor 3 - Alternatives A and C

Mechanical treatments, harvest activities, and some prescribed fire would be implemented under these alternatives, reducing the risk of catastrophic wildfire to low or moderate levels across the Forests. Risks to private property and impacts to air quality are minimized under these alternatives. The risk of long- and short-term changes to lifestyles, customs, and property values due to wildfire are lowest under these alternatives.

Social Factor 3 - Alternative Modified E

Under this alternative, prescribed fire would be utilized on a small scale to mimic natural wildfire disturbances in order to move ecosystems toward the range of natural variability. Mechanical treatment and harvest activities would be implemented at a moderate level, somewhat less than under Alternatives A and C. Risk of catastrophic wildfire would range from low to moderate. The risk of long- and short-term changes to lifestyles, customs, and property values is slightly higher than the following alternatives.

Social Factor 3 - Alternatives B, D, F, and G

Under these alternatives, less emphasis would be placed on mechanical treatments and harvest activities. Prescribed fire would be utilized to mimic larger scale natural disturbances in order to move ecosystems toward the range of natural variability. Risk of catastrophic wildfire would range from moderate to high. Risks to private property and air quality from wildfire are greatest under these alternatives. The risk of long- and short-term changes to lifestyles, customs, and property values due to wildfire are highest under these alternatives.

Social Factor 4: Minerals Management

Local and Tribal governments have expressed an interest in adequate gravel resources to meet local needs. Tribal leaders suggest their access to gravel resources on the Forest should not be restricted. Tribal entities believe that access to and use of these resources are a right granted to them under treaty. Local governments are also interested in utilizing the mineral resources of the Forests.

Social Factor 4 - Effects Under All Alternatives

Management of gravel resources is guided by direction provided in Forest Service Manual 2850. This direction authorizes the Forest Service to provide gravel resource to Public Road Authorities, which include Tribes, states, counties, and townships, provided that it serves the public interest, is environmentally acceptable, and does not deplete the resource below a level needed for National Forest use.

Social Factor 5: Vegetation Management, Composition, and Health

Vegetative composition, management, and forest health are important concerns of local and regional residents. Use of vegetative resources for commercial use; subsistence, medicinal, and cultural purposes is an integral part of the lifestyles and customs of many local residents. Vegetative resources also contribute to, and enhance the recreational experience of, forest users. Northwoods vegetation, (forested areas of pine and hardwoods), is also an integral component of residents and visitors sense of place. The northwoods environment contributes to such a strong sense of place, that it is often a considerable factor affecting an individual's decision to live in the area.

Social Factor 5 - Effects Common to All Alternatives

Tribal rights to gather vegetative resources for traditional and cultural values and uses would be facilitated within the capability of the resource under all alternatives. Other recreational and subsistence uses would be accommodated while providing for a sustainable resource.

Species that are of interest for spiritual, cultural, traditional, subsistence, or commercial uses would continue to be present across the landscape, however locations and quantities may change over time in

response to management activities or natural succession. A more detailed discussion of effects to specific vegetative communities by alternative has been described under Indicator 2, Changes in Traditional and Culturally Important Areas and Individual Species, above. There is also additional information in the Final EIS, Chapter 3 Section 3.2, 3.3 and 3.4.

Vegetative diversity important to activities such as driving for pleasure would continue to enhance the landscape. Vegetative composition would vary over time based on the alternative selected and management activities implemented.

Standards and guidelines to encourage and promote a healthy vegetative community would be implemented under all alternatives. It is important to remember however that healthy ecosystems include naturally occurring events such as endemic levels of insect infestations and wildfire occurrences.

Social Factor 5 - Alternatives A and C

The range of vegetative components currently present would continue, similar to the existing condition. The location and concentration of some species may vary over time in response to management activities and natural events.

Management activities would continue at current levels utilizing a wide range of silvicultural practices including clearcuts, select harvests, and prescribed fire. Harvest activities would be moderately noticeable within major travel corridors.

These alternatives may be most acceptable to those whose sense of place is tied to the current mix of age classes and vegetative species.

Social Factor 5 - Alternatives B and D

Locations and concentrations of individual species would vary over time as vegetative communities progress through successional stages. There would be long-term variations in vegetative communities inherent in a normally functioning ecosystem. Species composition would move toward a more mature forest with less aspen, birch, and brush species.

Management activities across the landscape would be less noticeable than under Alternative A. Harvest

activities would occur with more frequency in certain areas, but utilize selective harvest methods that are less obvious to the casual observer. After the second decade, harvest activities would be discontinued under Alternative D. Harvest activities would be relatively constant throughout the planning period under Alternative B. Major travel corridors would be managed to minimize evidence of management activities under both alternatives.

These alternatives may be most acceptable to individuals who value older, more mature forests as an element of their sense of place. Those who object to more noticeable harvest related activities might also prefer these alternatives.

Social Factor 5 -Alternatives Modified E, F, and G

The range of vegetative components currently present would begin to shift toward a larger quantity of older age classes than exist currently. The location and concentration of some species may vary over time in response to management activities and natural events.

Management activities would include a wide range of silvicultural practices including clearcuts, select harvests, and prescribed fire. The utilization of clearcut harvest methods would be reduced somewhat in favor of more selective harvest methods. Harvest activities would be somewhat noticeable within major travel corridors.

These alternatives may be most acceptable to those who prefer a more mature forest that still provides opportunities to enjoy early successional communities such as aspen and birch.

Social Factor 6: Timber Management

Timber management is important to local and regional economies for the contribution of wood to support local timber industry. Additionally, many residents utilize timber resources in support of cottage industries and for traditional, cultural, subsistence, and recreational uses. The harvest and utilization of timber related products is important to the sense of place for many people as a historical use. It is also an integral part of the local lifestyle.

There are some residents who support timber harvest activities but object to clearcut harvest methods and/or unnatural appearing harvest outcomes. These

individuals prefer the use of more selective harvest methods that more closely emulate naturally occurring events and are less visually apparent.

Still others would prefer that no harvest activities occur, objecting to the human manipulation of ecosystems and their processes. For many of these individuals, evidence of human management activities, detracts from their enjoyment of the forest environment.

It is important to remember actual current harvest levels have dropped below what the 1986 Forest Plan allows for as represented by Alternative A.

Social Factor 6- Alternatives A, B, C, modified E, F, and G

Harvesting activities would occur in all the above alternatives. Differences between the alternatives revolve around quantities to be harvested and harvest methods. Economic impacts related to harvest levels under each alternatives are discussed in the Final EIS, Chapter 3, Economic Sustainability section.

Harvest levels under these alternatives over the first decade range from a high in Alternative C of 91.5 MMBF for the Chippewa NF and 186.9 MMBF for the Superior NF to a low of 38.8 MMBF for the Chippewa NF (Alternative F) and 62.6 MMBF on the Superior NF (Alternative B). While Alternative C provides for harvest levels exceeding the existing condition, levels in Alternatives B and F are substantially less than current harvest levels.

Since timber-harvesting activities would continue to occur, although at differing levels, the harvesting activities would continue to contribute to the local and regional economy and also to the sense of place and lifestyle of area residents. Demand for timber related resources for cottage industries and traditional, cultural, subsistence, and recreational uses would continue to be supported within the capability of the resource.

Harvest methods under these alternatives would include clearcutting. The percentage of clearcutting would differ by alternative with Alternative A being the highest and Alternative B the lowest. Those opposed to clearcutting and highly noticeable silvicultural management methods would likely prefer

alternatives utilizing less clearcutting such as Alternative B.

Social Factor 6 - Alternative D

Harvesting activities would occur at the lowest level under this alternative. Except for harvesting limited to partial cutting for restoration, there would be no further harvest activities after the first two decades. Timber harvest activities would continue to contribute to the local and regional economies and to lifestyles and a sense of place for the next 20 years, after which it would become a very minor component.

The ability to support the current level of demand for timber related resources for cottage industries and traditional, cultural, subsistence, and recreational uses would continue to be supported within the capability of the resource for the first twenty years of the planning period. After that, the ability to support the current level of demand may be limited based on access opportunities. See discussion of Social Sustainability Indicator 3, Changes in Forest Access and also Appendix F of the Final EIS.

Social Factor 7: Terrestrial Wildlife Management

Wildlife species are important to the social environment for recreation activities such as hunting and wildlife viewing. They are also important for traditional, cultural, spiritual, and subsistence uses. Protecting and enhancing rare habitats and species is important for their contribution to a healthy ecosystem. Some people also value these species for their existence value in terms of the pleasure and comfort of knowing that they exist.

Social Factor 7 - Effects Common to All Alternatives

Under all alternatives, standards and guidelines would be implemented to protect and enhance habitat to contribute to the continued existence and viability of rare species.

Across all of the alternatives, there is a wide range of factors in addition to habitat that effect wildlife populations. While habitat factors vary across the alternatives and may favor certain species, these other factors may have considerable/greater effects on populations.

Social Factor 7- Alternatives A and C

These alternatives would provide a greater portion of habitat for species most closely associated with young forests, early successional forests, and edges. This would include species such as deer, moose, beaver, and upland game species. These species are important for traditional hunting and subsistence uses as well as recreational hunting and viewing opportunities. Some of these species are also important to the spiritual life of some individuals and groups.

Species associated with older forests, later successional forest and interior areas would be present, although populations may be smaller than under other alternatives.

People who actively engage in hunting, trapping, and viewing species associated with this habitat are most likely to prefer these alternatives.

Social Factor 7 - Alternatives modified E, F, and G

These alternatives would provide habitat for species most closely associated with a variety of forest conditions and successional stages. This would include species such as deer, moose, beaver, and upland game species, although at lower populations than under Alternatives A and C. These species are important for traditional hunting and subsistence uses as well as recreational hunting opportunities. Some of these species are also important to the spiritual life of some individuals and groups.

Increased habitat favoring species such as bear, pine martin, fisher, red shoulder hawk, boreal owl, and goshawk would also be provided.

Those who seek viewing opportunities for a wide range of wildlife species would most likely prefer these alternatives. Those who actively engage in hunting and trapping activities may experience somewhat reduced opportunities over time as the proportion of mature forest increases.

Social Factor 7- Alternatives B and D

These alternatives would provide a greater proportion of habitat for species associated with older forests, later successional forest, and interior areas. This would include species such as bear, pine martin, fisher, red shoulder hawk, boreal owl, and goshawk. Species

such as bear are important for hunting and spiritual purposes.

Early successional species important for traditional hunting and subsistence uses as well as recreational hunting and viewing opportunities would still be present, although population levels may be reduced. Some of these species are also important to the spiritual life of some individuals and groups.

Those who seek viewing opportunities for wildlife species associated with this habitat would most likely prefer these alternatives. Those who actively engage in hunting and trapping alternatives may experience somewhat reduced opportunities over time as the proportion of mature forest increases.

Social Factor 8: Heritage Resource Management

Concerns have been expressed about the lack of interpretation of historic and prehistoric sites that provide insight into the heritage, traditions, and culture of the local Tribe and Bands. The Leech Lake Band of the Ojibwe has indicated an interest in capitalizing on opportunities to enhance existing knowledge and educate the public through interpretation.

Social Factor 8 - Effects Common to All Alternatives

Under all alternatives, interpretive programs may be designed to inform the public about American Indians following consultation with the respective tribal government's staff.

Social Factor 9: Pesticide Application

The infested amount of acres and number of locations of noxious and exotic terrestrial and aquatic species has been increasing. There are concerns about the historical and potential future application of chemical pesticides. Tribal interests and local communities are concerned that the application of chemical herbicides may have a detrimental effect on the long-term health and welfare of the community.

Recent Forest Service policy has been to avoid the application of chemical pesticides and has resulted in disagreements with local county governments over philosophy, management, and control of noxious plant species. Future changes in the Forest Service pesticide policy are possible. There is current discussion within Region 9 of the Forest Service to explore and expand

appropriate utilization of pesticide applications with an amendment or modification to the Lake States Agreement. If this decision is made, then opportunities to use herbicides as a tool on a site-specific basis will be explored within the framework of the National Environmental Policy Act.

Social Factor 9 - Effects Common to All Alternatives

Under all alternatives the Forests would continue to work toward eradication of noxious weed and exotic species through the use of non-chemical methods, including biological and mechanical treatments and possibly pesticide applications. There may be opportunities, via the legal process of the National Environmental Policy Act, for spot (small, very well defined areas) applications of pesticides, and possible applications at a wider scale. Conflicts between the Forest Service and local governments may continue because of policy differences on the use of pesticides.

Social Factor 10: Recreation Management

Recreation opportunities are a key component of resident lifestyles. Forest related recreational opportunities influence the types of leisure activities pursued by locals as well as provide increased economic activity as non-residents enter the region to pursue the same opportunities. The recreational opportunities available are often a considerable factor affecting an individual's decision to live in the area.

Social Factor 10 - Effects Common to All Alternatives

All alternatives would provide for the continuation of motorized activities on some roads and designated trails. All alternatives would also provide some level of non-motorized recreational opportunities in both developed and semi-primitive landscapes. A variety of recreational opportunities would continue to be provided across the Forests, but in different quantities as related to the distribution of management areas within an Alternative.

Social Factor 10 - Alternatives A, C, modified E, and F

These alternatives tend to respond to those individuals who seek recreational opportunities and lifestyles that include motored activities such as snowmobiles and ATV's in a more developed forest setting. Recreational opportunities under these alternatives would continue to attract motorized recreational enthusiasts to live and/or recreate in the area.

Opportunities for non-motorized recreation would continue at approximately the current level. On the Chippewa NF, modified E offers somewhat more non-motorized opportunities than do Alternatives A, C, and F.

Social Factor 10 - Alternatives B and G

Motorized recreation opportunities under these alternatives would be reduced from current levels as more areas of the forests are designated for semi-primitive non-motorized uses. Those who choose to pursue motorized activities may experience increased crowding on popular roads and trails and may have to travel further for a desirable experience. Increased crowding may cause some individuals to seek other locations to pursue the activity on public and private lands.

Those preferring motorized forms of recreation would likely experience feelings of frustration and decreased quality of life.

Non-motorized recreation opportunities would increase, drawing more individuals who prefer more primitive forms of recreation to the area. These users may experience less crowding than currently as use is potentially dispersed over a larger area. Lifestyles for current residents and visitors who prefer non-motorized forms of recreation would be enhanced.

Social Factor 10 - Effects of Alternative D

Motorized recreation opportunities would be reduced to the greatest extent from current levels under this alternative as more areas of the forests are managed for semi-primitive non-motorized uses. Those who choose to pursue motorized recreation opportunities are likely to experience increased crowding on popular roads and trails and may have to travel further for a desirable experience. Increased crowding may cause some individuals to seek other locations on public and private lands.

Those preferring motorized forms of recreation would likely experience feelings of frustration and decreased quality of life.

Non-motorized recreation opportunities would increase, drawing individuals who prefer more primitive forms of recreation to the area. These users would experience less crowding as use is dispersed

over a larger area. Lifestyles for current residents and visitors who prefer non-motorized forms of recreation would be enhanced.

Social Factor 11: Roadless and Wilderness Study Areas

Concerns have been expressed about management of the BWCAW. However, management of this area is outside the scope of this revision.

There is disagreement among members of the public over whether the current amount of designated wilderness is sufficient, too little, or too much. The Forest Service must determine a preferred alternative that best addresses resource needs as well as human needs.

There are those who desire access to primitive recreation opportunities to enhance their lifestyles, while others require more developed opportunities, including recreational motorized use, to improve their lifestyle. For some individuals, both local and non-local, the knowledge that wild areas are protected through wilderness designation is of great value to them, even if they never actually visit these areas. Conversely there are those who believe that their opportunities and access are diminished through wilderness recommendations/designations regardless of whether or not they actively participate in motorized recreation activities.

Social Factor 11 - Alternatives A, C, modified E and F

No additional wilderness study areas are proposed under these alternatives. Therefore those people who desire primitive and semi-primitive wilderness style experiences may be dissatisfied with these alternatives. Those who value the existence of wilderness areas regardless of their level of use may also be dissatisfied.

Those who prefer more developed opportunities or who value access opportunities regardless of their participation may prefer this alternative. These individuals would likely feel a sense of satisfaction that their recreation and access opportunities would be maintained.

Social Factor 11 - Alternatives B, D, and G

These alternatives would provide potential additional wilderness study areas. Alternative D recommends including all areas as wilderness study areas meeting inventory criteria while Alternative G recommends the least number of additional areas and total acres. Alternative B offers somewhat more wilderness study areas than G. People who prefer primitive and semi-primitive wilderness experiences may be most satisfied under these alternatives, particularly Alternative D.

Those who prefer more developed opportunities or who value access opportunities regardless of their participation may experience dissatisfaction and/or frustration. They may feel that their lifestyle has been diminished.

Social Factor 12: Potential Research Natural Areas (RNA) and Special Management Complexes (SMC)

Concerns have been expressed that the designation of RNAs and SMCs diminishes the quantity of timber available to local producers, adversely affecting local and regional economies. These effects may extend to the lifestyles dependent upon the existence of a sustainable timber industry.

Effects of the volume of timber harvest are discussed under Timber Management earlier in this section. The harvest volume estimates used in that analysis included the effects of RNA and SMC designations.

Concern has also been expressed that the Forests need to provide representative ecological units. Some individuals experience satisfaction in the knowledge that a wide range of ecological systems have been identified and preserved for research purposes and to ensure that representative ecological units exist into the future.

Social Factor 12 - SMCs: Alternatives A, C, D, modified E, and F

These alternatives do not include SMC designations. Those who value such designations may not be satisfied with these alternatives and may continue to experience concern of the potential loss of representative ecological units on the Chippewa and Superior National Forests.

Social Factor 12 - SMCs: Alternatives B and G

These alternatives would designate as SMCs approximately 461,000 acres under Alternative B and 273,000 acres under Alternative G. Those who value the preservation of representative ecological units may experience satisfaction in the knowledge that these areas would be preserved.

Social Factor 12 - RNAs: A and C, on the Chippewa

These alternatives contain no additional potential proposed RNAs. Those who value such designations may not be satisfied with these alternatives and may continue to experience concern of the potential loss of representative research areas on the Chippewa NF.

Social Factor 12 - RNAs: Alternatives A, B, C, D, modified E, F, and G on the Superior NF and Alternatives B, D, modified E, F and G on the Chippewa NF

These alternatives include from 1 to 41 additional potential RNAs. Those who value the potential designation of representative research areas may experience satisfaction in the knowledge that these areas would be preserved and studied into the future.

Social Factor 13: Scenery Management

The scenery of the Chippewa and Superior National Forests is a major element of the sense of place that attracts many residents and visitors to the area. Many individuals want assurance that a natural northwoods scenic character be maintained. However, opinions diverge regarding what constitutes “natural.” For some people, the existing scenic character, with a larger percentage of early successional species is the desired condition. For others, scenery more representative of historic conditions, providing a more balanced mix of successional species and a higher percentage of older age classes is desired. Yet another group would favor scenic conditions in which a large percentage of the landscape provides late successional species and large, older age class trees.

The effects of the alternatives on scenery management are discussed in the Scenery section of Chapter 3, in the Final EIS. Proposed scenic integrity levels change by alternative based on the alternative’s theme.

Social Factor 13 - Alternatives A and C

These alternatives would provide a greater portion of young, early successional forest conditions. Those who prefer maintenance of the existing scenic characteristics might favor these alternatives.

Social Factor 13 - Alternatives modified E, F, and G

These alternatives provide a variety of forest successional stages and age classes. The landscape would provide some areas that are representative of current conditions as well as a greater percentage of late successional species and more large, older age class trees. Individuals who prefer a more balanced mix of species and age classes may favor these alternatives and their contribution to a more historic scenic character.

Social Factor 13 - Alternatives B and D

These alternatives would provide for a greater proportion of late successional vegetation. As time progresses, the number and distribution of large, older age class trees would continue to increase. Those who prefer large, older trees and late successional species are most likely to support implementation of these alternatives.

Social Factor 14: Wild, Scenic, and Recreational Rivers

Concern has been expressed that eligible wild, scenic, and recreational river segments be protected to ensure that their potential for designation to the national wild and scenic river system is preserved. Wild, scenic, and recreational rivers are another element of the sense of place that many people find important.

Social Factor 14 - Effects Common to All Alternatives

Under all alternatives, the characteristics that qualify segments as eligible for the national Wild and Scenic Rivers system would be protected.

Social Factor 15: Tribal Government to USDA Forest Service Government Relations

Government to government relationships are in the process of definition and evolution. A portion of the context the Forest Service works within is defined in the Forest Service Manual (FSM). The FSM 1563.03 states that the Forest Service policy shall be to:

- Maintain a governmental relationship with Federally recognized Tribal Governments;
- Implement Forest Service programs and activities honoring Indian treaty rights and fulfilling legally mandated responsibilities to the extent they are determined applicable to National Forest System lands;
- Administer programs and activities to address and be sensitive to traditional Native religious beliefs and practices; and
- Provide research, transfer of technology, and technical assistance to Tribal Governments.

tribal interests and concerns into the decision-making process.

- Facilitate the exercise of reserved treaty rights to hunt, fish, and gather within the constraints of the resource.
- Consider areas and resources important to American Indian tribal cultures when planning management activities or development proposals.
- The lands within the Forest serve to help sustain American Indians' way of life, cultural integrity, social cohesion, and economic well being.
- The Forest Service will administer projects and programs to address and be sensitive to traditional Native American religious beliefs and practices.
- The Forest Service will provide research, transfer of technology and technical assistance to Tribal governments

Social Factor 15 - Effects Common to All Alternatives

Forest-wide goals (Chapter 2, Final Forest Plan) identify specific goals that contribute toward the Forest Service mission, which is to sustain the health, diversity, and productivity of the nations' forests and grasslands to meet the needs of present and future generations. One of these goals states that the Forest Service will contribute to efforts to sustain the American Indian's way of life, cultural integrity, social cohesion, and economic well being. The agency will continue to work within the context of a respectful government-to-government relationship with Tribes, especially in areas of treaty interest, rights, traditional and cultural resources, and ecosystem integrity. The Chippewa NF facilitates the exercise of the right to hunt, fish, and gather as retained by Ojibwe whose homelands were subject to treaty in 1855 (10 Stat. 1165). Ongoing opportunities for such use and constraints necessary for resource protection are reviewed and determined in consultation with the Leech Lake Band of Ojibwe. Under all alternatives the Forest Plan would be designed to accomplish the following objectives:

- Improve relationships with American Indian Tribes in order to understand and incorporate tribal cultural resources, values, needs, interests, and expectations in forest management and develop and maintain cooperative partnership projects where there are shared goals.
- Establish a consistent and mutually acceptable approach to government-to-government consultation that provides for effective Tribal participation and facilitates the integration of

Forest management activities and administrative decisions, as directed and guided by the revised Forest Plan, will require consultation with affected Tribes. Affected Tribes will be consulted prior to initial scoping of site-specific project proposals in order to identify and address tribal interests.

- Specific areas of Tribal concern are also addressed in each chapter of the Final EIS and Plans. The Final Plans also include standards and guidelines specifically related to Tribal rights and interests along with standards and guidelines of general interest to the Bands.

Social Factor 16: Special Interest Influences

National Forests provide public lands and benefits to the people of the United States. Many people from all areas of the country: locally, regionally, and nationally are interested and want to influence National Forest management. There is a common perception among local residents that forest management direction is unduly influenced by non-local, well-funded special interest groups. This results in feelings of frustration

and concern that the best interests of the local community are not always reflected in management decisions.

There is also a perception that people who live out of the immediate vicinity of the National Forests that management of the forests should be considered and implemented from a national and regional perspective. There is a national debate about the appropriate levels of products (market and non-market) and services to be produced from National Forest System land. There is disagreement over the appropriate mix and level of products and services available to support diverse local and regional economies.

Social Factor 16 - Effects Common to All Alternatives

The Multiple Use Sustained Yield Act of 1960 directs the Forest Service to “administer the renewable surface resources of the National Forests for multiple use and sustained yield of the several products and services obtained therefrom.”

The National Environmental Policy Act of 1969 requires that before any agency of the federal government may take actions affecting the quality of the human environment, that agency must examine the potential effects of that action on the physical, biological, and socioeconomic environment.

These and other laws guide the Forest Service in the inventory, planning, decision-making, and implementation of Forest management activities. Regardless of the outcome of the Forest Plan revision process, the Chippewa and Superior National Forests will continue to meet laws, policies, treaties, and other agreements as appropriate to the circumstance.

In the Forest Plan revision process, the Forests have worked extensively to obtain input from individuals, agencies, special interest groups, local governments, and Tribal governments. The public involvement process used in Forest Plan revision is further described in Chapter 1.

All comments received through public involvement are considered as suggestions for improving the final product of the revision process. The solicitation of comments from interested stakeholders is not a voting process in which the suggestion with the most “votes” wins.

Cumulative Effects of All Social Sustainability Indicators

The interaction of people with Northern Minnesota’s land and natural resources creates the social and economic landscape of the Chippewa and Superior National Forests. The Forests have and will continue to provide for multiple-use benefits, (in terms of both quantity and quality), reflective of the values society places on the resources.

The policy of multiple-use will continue to guide management of national forests and will continue to be controversial. For those who seek to end or change this management policy, the restriction and/or elimination of some forest uses are long overdue. For other segments of the public, providing for multiple-use is an essential element of National Forest management.

The cumulative effects of alternatives described within the final EIS are all dependant upon responses to population growth, and increased cultural diversity.

Continued population growth and an increase in cultural diversity in the northern Minnesota region will affect the Chippewa and Superior in many ways. The demand for additional and varied opportunities to recreate and escape urban environments will bring more people into the forests. It will become increasingly difficult to provide the same wide range of recreation opportunities that have been available in the past as the number and diversity of users increase. Potential for conflicts increase as opportunities people seek become more limited and regulated. It will also become more challenging for forest managers to provide for cultural and heritage obligations, needs and desires as more diverse people bring more expectations to the forest.

The ability of the National Forests to meet existing market and non-market demands and new demands will be challenging and will require a cooperative effort. Continued and improved cooperative working relationships with Tribes; other communities; individuals; and state, county and local governmental agencies, will be imperative. Population growth and increased cultural diversity results in an increased demand for sustainable natural resources and social and economic benefits.

Increased population growth and an increase in forest use and utilization will generally result in more regulations, rules, and policy put into place to protect natural resources and social and economic benefits.

Population growth will also place higher demands on the natural resources of the Forests, such as wood products, now used by many people. Those individuals and businesses with economic ties to forest resources will likely find it increasingly difficult to locate alternative sources on neighboring public lands. Growing numbers of forest users, conflicting objectives, and the overriding need to ensure ecosystem health and sustainability will require compromise on the part of all involved.

Those alternatives that emphasize a more developed, multi-use forest setting (Alternatives A, C, and modified E) would generate concerns, issues, and conflicts related to compatibility of the wide variety of social and recreational uses; sustainable natural resources; continued movement toward more highly developed facilities and landscapes, and limited opportunities to experience semi-primitive landscapes.

The alternatives that emphasize a less developed, more limited or zoned multi-use forest setting (Alternatives B, D, F, and G) would generate concerns and issues related to restricted opportunities for continued facility and landscape development and reduced social and recreational opportunities to experience a highly developed and managed forest setting.

3.9.3 Heritage Resources

Introduction

Heritage resources are both the physical remains and the shared conceptual content or cultural context of past human activities and lifeways. A lifeway is the way humans interact and survive within an ecosystem. Lifeway representations may include archaeological sites, historic buildings, artifact and historic document collections, cultural landscapes or landforms, and traditional gathering or ceremonial places.

Heritage resources are managed within the context of overall Forest management for the benefit of all people. Benefits can be realized through such things as the scientific study of past human activities and past environments, traditional use by American Indians, and the development of interpretive sites where people can see and appreciate the diversity of past Forest use.

Most fundamentally, public benefit comes through maintenance and documentation of the sites themselves. Heritage resources are non-renewable. Once sites are disturbed or artifacts are removed from their natural settings, they are forever lost. Disturbing sites or collecting and removing artifacts from federal lands without a permit is prohibited.

Absent any land management conflicts, preserving important heritage resources in good condition, is the overall goal of heritage resource management. This can be achieved by protecting them from adverse management activities (avoiding or mitigating adverse effects to the greatest public benefit), vandalism, weathering, alteration of their settings, and other processes that cause them to deteriorate to the point of losing their value. In this way, heritage resources stand as a legacy for the future.

The Forests seek to ensure present and future generations a genuine opportunity to appreciate and experience our nation's rich and diverse heritage. Heritage stewardship and natural resource management must exist in productive harmony to

fulfill social, economic, and spiritual needs of all people.

Resource Concern

Forest Plan revision alternatives and management direction may affect heritage resources.

Background

No issues related directly to heritage resources were identified during public scoping or the Need For Change analysis process. However, Forest management activities have the potential to directly, indirectly, or cumulatively affect heritage resources. Management activities can influence site disturbance or discovery, improve or restrict access to sites, or provide opportunities and funding for conducting surveys and recording heritage sites. These activities are related to many of the Need For Change topics, and could be implemented under any of the alternatives. Also, compliance with federal laws governing heritage resources is an important management concern. Therefore, potential effects on the heritage resources are analyzed in this section.

The Heritage Program is one of a number of program areas needing strengthened management direction in the Forest Plans. Specifically, Heritage goals, objectives, standards and guidelines need to be revised to meet the intent of legislation and executive orders implemented since the original Plans were approved. The revised Plans also need to acknowledge the direction from the Chief of the Forest Service in 1992 which called for a change from a "Cultural Resources Program" focused primarily on legal compliance, to a "Heritage Program" that emphasizes a balance between protection of historic properties and public outreach for the enjoyment and appreciation of American history.

Considerable differences in effects to heritage resources by alternative are not expected. As a result, general potential effects common to all alternatives are listed and analyzed in this section.

Affected Area

The affected areas for direct and indirect effects to heritage resources are the lands administered by the two National Forests in Minnesota. This area represents National Forest System land where heritage resources could exist, and lands where those resources could receive impacts from both management activities and natural events. The affected area for cumulative effects includes the lands administered by the National Forests, and lands of other ownership both within and adjacent to these National Forest boundaries. Cumulative effects to resources on other land ownerships are addressed to lend a broader perspective to the importance of resources on the Forests.

3.9.1.a Current Condition of the Resource

Human occupation of northern Minnesota has been continuous for at least the last 11,000 years. Evidence of past human lifeways are found throughout the Forests. The majority of inventoried heritage resource sites on the Forests are archaeological, that is, they contain buried physical evidence of past human activities. These range from campsites that are several thousands of years old to logging camps and homesteads of the early 20th century. Other property types inventoried include traditional use areas, historic buildings, and other structures.

On both Forests about two-thirds of the National Forest System land has been subject to heritage survey although many of these surveyed areas need supplemental work to be considered adequate under current standards. About 3,200 heritage sites have been identified on those lands on the Superior National Forest and about 1,850 sites have been identified on the Chippewa National Forest. Most of the inventoried sites are archaeological, although historic standing structures and an increasing number of traditional use areas are also inventoried. Large numbers of additional heritage sites will likely be recorded in the future on both Forests as surveys are completed on lands not previously subject to adequate survey.

The vast majority of these sites have not been evaluated against the criteria of significance for inclusion within the National Register of Historic Places. For the purposes of heritage resource management, all unevaluated sites are treated as if they were eligible to the Register until such time as they are shown by the evaluation process to be ineligible.

Several heritage sites across the Forests have been interpreted for public appreciation and awareness. Numerous brochures and reports are available for the public regarding heritage resources and their management on the Forests, and several research projects have been conducted on the Forests under the supervision of Forest Heritage Specialists. "Passport in Time" and "Windows on the Past" projects are conducted on the Forests and are increasing in popularity with the public.

3.9.1.b Environmental Consequences

Effects Common to All Alternatives

Resource Protection Methods

Resource protection is integrated into heritage resource management at all levels, from national to site-specific. The cumulative positive effect of the management direction comprised by the laws and regulations described below is beneficial protection and mitigation for heritage resources potentially affected by management activities.

Numerous laws, regulations, and policies govern the use, protection, and administration of heritage resources on National Forest System land. Some of the more commonly cited and applied laws include: Antiquities Act of 1906; National Historic Preservation Act of 1966, as amended; American Indian Religious Freedom Act of 1978; Archaeological Resources Protection Act of 1979; Native American Graves Protection and Repatriation Act of 1990.

National laws and regulations are also interpreted in Forest Service Manuals and Handbooks. Management activities occurring on National Forest System land comply with these laws, regulations, and policies intended to provide general guidance for the implementation of the Heritage Program and for protection of heritage resources.

Maintenance or improvement of heritage resource conditions on National Forest administered lands would occur under all alternatives. This management direction for all alternatives occurs at both forest-wide and management area levels. Heritage resource goals and objectives are designed to achieve desired conditions and implement the Heritage Program over the long term. Standards and guidelines are designed to protect heritage resources.

A variety of methods are available to eliminate, minimize, or reduce direct effects on heritage resources at the project level. Archaeological excavation or structural inventory and recording can provide for recovery of heritage data. Activities and projects can be modified to avoid heritage resources. Scheduling projects when the ground is frozen can reduce soil compaction and disturbance to avoid damage to resources. Relocating certain features or structures, increasing monitoring and law enforcement, land acquisitions, providing interpretation activities, and securing restrictive covenants prior to transferring land from federal ownership are other protective measures. Developments in archaeological modeling have also improved the Forest's ability to identify areas of high risk to heritage resources.

Methods to eliminate, minimize, or reduce indirect effects include initiating public education programs, posting heritage resources with informational signs, monitoring sites, rerouting trails, stabilizing eroding sites, constructing barriers, hiding sites, and properly designing adjacent projects to minimize visual, auditory or atmospheric intrusions, as well as undertaking all the mitigation methods listed above for direct effects.

Methods that can be employed to eliminate or reduce cumulative effects include site recording, data recovery, site interpretation, state-of-the-art research techniques, and stabilization or restoration.

General Effects Common to All Alternatives

Because law, regulation, and policy explicitly control heritage resource management on federal lands, forest management practices and their effects would not differ substantially among the revision alternatives. In all alternatives, the Heritage Program would provide support to all of the resource projects, as required under Section 106 of the National Historic Preservation Act and as regulated under 36 CFR Part 800. The program would include inventory, analysis, protection, stabilization, and public interpretation of heritage resources under all alternatives. The levels of these individual activities and projects would vary to some degree by alternative, but the general neutralizing or positive effects of mitigation, protection, and education would remain the same.

In all alternatives, the potential exists for heritage resources to be exposed and damaged by surface disturbance or other events. Archaeological sites and traditional use areas would be most vulnerable because they can be difficult to identify. Natural erosion and depositional processes degrade heritage resources. Wildfire and emergency suppression efforts can adversely affect heritage resources. Inadvertent damage during project implementation also occurs. These resources may or may not be noticed in time to allow mitigation. This risk of unavoidable damage is common to all alternatives.

Direct effects also could occur to heritage resources as a result of non-sanctioned activities, such as vandalism or illegal excavation. Efforts to control and monitor these activities are similar in all alternatives, and would result in a lowered level of cumulative adverse effects to heritage resources.

Landownership adjustments could potentially result in the loss of federal protection for heritage resources on lands transferred to other ownership. However, prior to landownership transfer, inventories are conducted and mitigation applied, if needed. Land acquisition is another potential method of protecting and preserving valuable heritage resources. Since acquisitions are largely a function of current congressional intent, the level of land acquisition is not expected to vary much by alternative. Other landownership adjustments are also unlikely to vary much by alternative.

All alternatives would have some irreversible commitments of heritage resources. Examples are inadvertently damaged or destroyed sites, vandalized or looted sites, and sites that have not been inventoried and recorded and are undergoing loss from natural processes. Every alternative seeks to reduce those potential losses through inventory and evaluation, monitoring, and improved project implementation to ensure that these losses are kept to a minimum.

Data collection through excavation, the most common mitigation for unavoidable impacts to archaeological sites, also results in some loss of resources. Use of heritage sites and resources for public interpretation, education, and service may also result in some loss of resources. However, beneficial indirect effects, that counterbalance the negative effects, are usually achieved through public education and increased sensitivity for heritage resources.

Direct, Indirect, and Cumulative Effects

Direct and Indirect Effects

Direct effects on heritage resources can result from both natural events and from human activities that damage the resources or alter their settings. Ground disturbance occurs in a wide range of management activities including timber harvest; road and trail construction, reconstruction, relocation, maintenance, and decommissioning; management ignited fire and wildfire control; mineral exploration; facility construction; utility development; recreational vehicle use; and watershed and wildlife improvement construction. Other potentially damaging effects include soil compaction, erosion, flooding, soil slumping, heating and freezing, wildfire, prescribed burning, recreational vehicle use, setting alterations (including introduction of atmospheric, visual, or audible intrusions), and loss of heritage resources if land is transferred from federal to nonfederal ownership.

Recreation use may have adverse effects because use can be difficult to regulate on both Forests, and some form of recreation use occurs over such wide areas of the Forests. For planned recreation developments, most of the potential direct effects can be eliminated or mitigated during project planning and implementation.

However, indirect effects from dispersed use such as vandalism, trampling, loss of integrity, or erosion is more difficult to mitigate across the remaining expanses of the Forests because inventories are incomplete and monitoring is less frequent.

Use of ATVs, motorcycles, and 4-wheel drive vehicles can have both direct and indirect effects. Archaeological deposits are damaged when they are repeatedly driven over to the point where vegetation is destroyed and compaction, rutting or erosion occurs. Increased looting and vandalism can also occur with increased access and surface exposure.

Because ATV use can be difficult to regulate and monitor as a practical matter, these effects could occasionally occur under all alternatives. Those alternatives that allow cross-country ATV travel or travel on unclassified roads or user-developed trails may make enforcement for the purpose of resource protection more difficult.

As recreational use of the two Forests continues to rise due to the increased visitation, impacts to heritage resources may also increase. Unauthorized collecting, theft, excavations, and vandalism occur now and would likely continue.

There is a direct relationship between the number of acres proposed for project implementation and the number of acres surveyed for heritage resources. This relationship also exists for the number of heritage resources located and evaluated. It is likely that Alternatives A, C, and E, would result in higher levels of inventory, analysis, and stabilization than Alternatives B, F, and G due to their higher levels of proposed ground-disturbing activities associated primarily with timber harvest and OML 1 and temporary road construction on both Forests. The least amount of ground-disturbing activity would occur under Alternative D. For all alternatives inventoried heritage sites would be avoided or mitigation of effects would occur.

Indirect effects can include road access that brings more visitors and a rise in vandalism, removal of materials, inadvertent damage or fires, and visual and auditory disturbances from adjacent or nearby activities. Changes in the extent of access, either lengthening or shortening of roads, can also increase the area of potential effects. On the Chippewa National

Forest, all alternatives would reduce the miles of roads open to public motorized use over the short- and long-terms. On the Superior National Forest, all alternatives would maintain or reduce (especially under Alternative D) the miles of road open to public motorized use over the short- and long-terms.

and implementation of protection or mitigation measures is rare or does not occur at all.

Cumulative Effects

Cumulative effects over time can include loss of sites or resources prior to development of better survey or research techniques, loss of interpretive values, and incremental loss of the heritage resource base.

Forest management projects may cause surface disturbance, bring additional people in contact with heritage resources, or affect the character of historic structures or traditional use areas. Differences in cumulative effects to heritage resources under different alternatives as a result of sanctioned management activities should be low because of the protection and mitigation measures common to all alternatives.

Alternatives that result in more acres of planned and budgeted management activities could reduce adverse cumulative effects to some degree. This is because more inventory, evaluation, and monitoring would be required under these alternatives. The additional inventory and evaluation would lead to more heritage resources being located and a reduction of adverse cumulative effects due to other human or natural processes after heritage resources are brought under appropriate management. Since no inventory method can assure that every heritage resource will be identified, however, this positive affect may be offset by the increased likelihood of inadvertent damage to heritage sites not identified by inventory.

Through time, heritage resources on federal lands may assume greater importance because such resources on lands of other ownership are not always provided the same degree of protection. Construction and development on private lands may destroy heritage sites without providing an opportunity for recovery of data or other mitigation unless the projects are the result of federal licensing, permitting, or funding. Cumulative risks to heritage resources increase on private lands and some non-federal public lands when little or no inventory or evaluation is being conducted