

# Appendix B – Roadless Inventory

## Table of Contents

<b>INTRODUCTION .....</b>	<b>B-1</b>
OTTAWA DESCRIPTION .....	B-1
2003 FOREST PLAN REVISION POTENTIAL FOREST ROADLESS INVENTORY .....	B-2
1986 FOREST PLAN ROADLESS INVENTORY .....	B-2
NORWICH INVENTORIED ROADLESS AREA .....	B-2
<b>DIRECTION FOR CONDUCTING A ROADLESS AREA INVENTORY AND WILDERNESS EVALUATION .....</b>	<b>B-3</b>
PURPOSE .....	B-3
AUTHORITY .....	B-3
REQUIREMENTS .....	B-3
DETAILS .....	B-4
<b>DESCRIPTION OF ROADLESS AREA INVENTORY CRITERIA .....</b>	<b>B-4</b>
PRIMARY CRITERIA .....	B-4
1909.12, Chapter 7, 7.11.....	B-4
1909.12, Chapter 7, 7.11a.....	B-5
1909.12, Chapter 7, 7.11b.....	B-6
EASTERN REGION DIRECTION.....	B-6
IMPROVED ROADS .....	B-8
1964 WILDERNESS ACT – SEMI-PRIMITIVE CORE - ROS .....	B-8
DETAIL – SEMI-PRIMITIVE CORE.....	B-9
<b>DESCRIPTION OF STEPS IN THE OTTAWA ROADLESS AREA INVENTORY .....</b>	<b>B-10</b>
<b>SUMMARY.....</b>	<b>B-19</b>

## List of Tables

TABLE B-1. ROADLESS INVENTORY SUMMARY FOR OTTAWA NATIONAL FOREST.....	B-14
TABLE B-2. INVENTORY FOR POTENTIAL ROADLESS AREA, AREA 2.....	B-18



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## Appendix B – Roadless Inventory

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### Introduction

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This document describes the process used to conduct the roadless area inventory for the Ottawa National Forest (the Ottawa), Forest Plan revision and the results of this analysis. The Wilderness Evaluation is documented in Appendix C of the Final EIS (FEIS). The roadless inventory for the Ottawa began in May 2003 and concluded in August 2004. Data gathered and roadless inventory processes were consistent among the neighboring Lake States and Eastern Region National Forests, as applicable. However, because there are factors unique to each forest such as landtypes, landscapes, land patterns, management, and land uses – historical and present, the roadless inventory criteria may have been applied in different stages, or in a slightly different manner as compared to neighboring national forests.

### ***Ottawa Description***

The Ottawa today was largely created through a long term reforestation effort. Prior to Forest Service ownership much of the lands were clearcut, burned, and barren. Most of the forest cover is less than 100 years old and is composed of predominantly northern hardwood tree species with associated plants and animals. Mixed stands of early successional, lowland conifer, and upland conifer trees are also common. Glacial geology characterizes most of the Ottawa, providing variety in landform from hilly glacial moraines to outwash sand plains. Rock outcroppings and a few hills and ranges are also present.

The majority of the Ottawa (about 82%) is in the roaded natural category of the Recreation Opportunity Spectrum (ROS). One of the characteristics of this ROS setting is strong evidence of designated roads. Road densities vary by management area and range from 1.5 miles/square mile to 4 miles/square mile. Across the entire Ottawa, about 80% of the Forest is within ¼-mile from an OML 1, 2, 3, 4 or 5 road, federal, state or county road. Overall there are about 3,730 miles of roads managed as part of the Ottawa transportation system (OML 1-5 roads).

Even with this density of roads, the Ottawa has a remote character in large part due to the low population density of the area, a relatively low density of housing and other structures, limited developed recreational areas, and the relatively contiguous nature of the National Forest System lands that make-up the Ottawa. The majority of the road system is comprised of OML 1 and 2 roads. In addition a moderately low level of recreation use contributes to the feeling of remoteness. Nationwide, the Eastern Region of the Forest Service ranks 6 out of 9 regions in national forest visits according the National Visitor Use Monitoring results. Out of the 15 National Forest units in the Eastern Region, the Ottawa ranks 11<sup>th</sup> in visitation at 638,000 national forest visits per year. This compares region-wide to the Superior National Forest with the highest visitation at 4,035,000 and the Midewin National Tall Grass Prairie with the lowest visitation at 29,000 national forest visits.

Recreation use on the Ottawa tends more towards dispersed use rather than developed recreation. The system of roads that are interwoven throughout the Ottawa help provide for this use. For more detailed descriptions on recreation use and the transportation system see the Transportation, Recreation and Social sections in Chapter 3 of the FEIS, and Appendix B, *Recreation Opportunity Spectrum*, of the final Forest Plan (herein referred to as Forest Plan).

### **2003 Forest Plan Revision Potential Forest Roadless Inventory**

Forest Service planning regulations require that during Forest Plan revision, the roadless character of National Forest System lands be evaluated. National forests are required to inventory potential roadless areas of public land, and if qualified, to consider these areas for recommendation as potential wilderness in an updated Forest Plan. The inventory process was a data gathering effort using existing and available data, Geographic Information System (GIS) layers, and on-the-ground professional knowledge. A forestwide interdisciplinary team completed the Ottawa potential roadless inventory. Roadless inventory criteria were applied consistently across the forest. Included in the inventory is a review of the Norwich Inventoried Roadless Area (IRA), the only IRA on the Ottawa.

### **1986 Forest Plan Roadless Inventory**

The 1986 Forest Plan included a roadless inventory and recommendation for wilderness. At the time of plan approval, the Ottawa did not have designated wilderness. Four areas were evaluated as potential wilderness (USDA Forest Service 1986). Three areas were identified through the RARE II process (Sylvania, Sturgeon River Gorge, and Norwich Plains [a.k.a. Cascade Falls]) and one area, McCormick, was identified through the roadless inventory. Three areas, McCormick, Sturgeon River Gorge, and Sylvania were found to meet roadless or wilderness definitions, and were placed in a wilderness study management area in the 1986 Forest Plan. Subsequently, all three areas were designated Wilderness through the 1987 Michigan Wilderness Act. The 1986 Forest Plan was then amended to include management of wilderness. Norwich Plains was not recommended for wilderness designation and has been managed as an Inventoried Roadless Area.

### **Norwich Inventoried Roadless Area**

The Norwich Inventoried Roadless Area was identified through the Forest Service's Roadless Area Review and Evaluation (RARE II) process in the late 1970s. In the years since the completion of RARE II, Congress has designated some areas as wilderness. Norwich Plains was not recommended for wilderness designation in the 1986 Forest Plan. The area has been managed as part of management area 6.2 and according to the Roadless Area Conservation Rule of January 2001. The Norwich area was included in the Forest's potential roadless inventory.

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## Direction for Conducting a Roadless Area Inventory and Wilderness Evaluation

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### **Purpose**

The Wilderness Act of 1964 and the Eastern Wilderness Act of 1975 provide the purpose of wilderness and the broad direction for managing wilderness.

### **Authority**

The authority for studying and designating wilderness is contained in the Wilderness Act of 1964 and the Eastern Wilderness Act of 1975 (see FSM 1923.01). The authority for conducting a Roadless Area Inventory and Wilderness Evaluation as part of Forest Plan revision is found in two separate acts of Congress:

- The Forest and Rangeland Renewable Resources Planning Act of 1974 directs the Secretary of Agriculture to develop regulations “specifying guidelines for land management plans developed to achieve the goals of the program which, (A) ensure consideration of the economic and environmental aspects of various systems of silviculture and protection of forest resources, to provide for outdoor recreation (including wilderness), range, timber, watershed, wildlife, and fish.” [Section 6 (f)(3)(A)]
- The 1987 Michigan Wilderness Act, in Section 6 (b) (2) in part states that the wilderness option shall be reviewed when the Forest Plans are revised but not prior to that time.

### **Requirements**

The requirements for evaluation and designation of wilderness are found in the Code of Federal Regulations (CFR) and the Forest Service Manual (FSM):

- **36 CFR 219.17 (1982) Evaluation of Roadless Areas** (a) Unless otherwise provided by law, roadless areas within the National Forest System shall be evaluated and considered for recommendation as potential wilderness during the forest planning process. (1) During analysis of the management situation, the following areas shall be subject to evaluation:
  - i. Roadless areas including those previously inventoried in the second roadless area review and evaluation (RARE II), in a unit plan, or in a forest plan, which remain essentially roadless and undeveloped, and which have not yet been designated as wilderness or for non-wilderness uses by law. In addition, other essentially roadless areas may be subject to evaluation at the discretion of the Forest Supervisor;
  - ii. Areas contiguous to existing wilderness, primitive areas, or administratively proposed wildernesses, regardless of which agency has jurisdiction for the wilderness or proposed wilderness;
  - iii. Areas that are contiguous to roadless and undeveloped areas in other federal ownership that have identified wilderness potential; and

- iv. Areas designated by Congress for wilderness study, administrative proposals pending before Congress, and other legislative proposals pending which have been endorsed by the President.
- **Forest Service Manual 1923 (Wilderness Evaluation)** – Consideration of wilderness suitability is inherent in land and resource management planning. Planning for potential wilderness designation may occur in the development of a forest plan or may require a separate study.
  - **FSM 1923.03(2)** – A roadless area being evaluated and ultimately recommended for wilderness or wilderness study is not available for any use or activity that may reduce the area’s wilderness potential. Activities currently permitted may continue, pending designation, if the activities do not compromise wilderness values of the roadless area.
  - **FSM 1923.04c** – Forest Supervisor. The Forest Supervisor shall conduct necessary wilderness studies and prepare a study report/environmental impact statement, either as part of the forest plan or as a separate study.
  - **Forest Service Manual 2320 (Wilderness Management)** lists the specific laws affecting the administration of national forest wilderness, including the Wilderness Act of 1964; the Forest Management Acts of 1897, 1899 and 1901 (Organic Act); the Multiple-Use Sustained-Yield Act of 1960; the National Environmental Policy Act of 1969; the Eastern Wilderness Act of 1975; the National Forest Management Act of 1976, and the Clean Air Act of 1977.

## **Details**

The details, criteria, and direction used to inventory roadless areas for potential designation as wilderness follows direction found in FSH 1909.12 and the Eastern Region Guidelines for Completing Roadless Area Inventories during Forest Plan Revision (USDA Forest Service 1997b). FSH 1909.12, “Land and Resource Management Planning Handbook, WO Amendment 1909.12-92-1 Effective 8/3/92” provides in Chapter 7 the criteria for roadless inventory as follows.

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## **Description of Roadless Area Inventory Criteria**

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### **Primary Criteria**

The Forest Service Handbook (FSH) 1909.12 identifies three primary criteria an area must meet to be considered a potential wilderness (or roadless area):

#### **1909.12, Chapter 7, 7.11**

1. They contain 5,000 acres or more.

2. They contain less than 5,000 acres but:
  - a. Due to physiography or vegetation, they are manageable in their natural condition.
  - b. They are self-contained ecosystems such as an island.
  - c. They are contiguous to existing wilderness, primitive areas, administration endorsed wilderness, or roadless areas in other federal ownership, regardless of their size.
3. They do not contain improved roads, maintained for travel by standard passenger type vehicles, except as permitted in areas east of the 100th meridian (sec. 7.11b, the area contains no more than ½ mile of improved road for each 1,000 acres, and the road is under Forest Service jurisdiction).

### Exceptions

The Handbook notes some important exceptions to these basic criteria. For instance, a roadless area may qualify for inventory even though it includes the following types of areas or features:

### 1909.12, Chapter 7, 7.11a

1. Airstrips and heliports.
2. Cultural treatments involving plantations or plantings where use of mechanical equipment is not evident.
3. Electronic installations, such as television, radio, and telephone repeaters, and the like, provided their impact is minimal.
4. Areas with evidence of historic mining (50+ years ago). Do not include areas of significant current mineral activity, including prospecting with mechanical earth-moving equipment. The inventory may include areas where the only evidence of prospecting are holes that have been drilled without access roads to the site. Inventoried roadless areas also may include:
  - a. Areas that otherwise meet the inventory criteria if they are covered by mineral leases having a “no surface occupancy” stipulation.
  - b. Areas covered by mineral leases that otherwise meet inventory criteria only if the leasee has not exercised development and occupancy rights. If and when these rights are exercised, remove the area, or portion, affected from the inventory unless it is possible to establish specific occupancy provisions that would maintain the area in a condition suitable for wilderness.
5. National Grasslands.
6. Areas of less than 70% federal ownership, if it is realistic to manage the federal lands as wilderness, independent of private land.
7. Minor structural range improvements such as fences or water troughs. Areas with spray or burning projects are permissible if there is little or no evidence of the project.
8. Recreation improvements such as occupancy spots or minor hunting or outfitter camps. As a general rule do not include developed sites. Areas with minor, easily removable recreation developments may be included.

9. Timber harvest areas where logging and prior road construction are not evident. Examples include those areas containing early logging activities related to historic settlement of the vicinity, areas where stumps and skid trails or roads are substantially unrecognizable, or areas where clear cuts have regenerated to the degree that canopy closure is similar to surrounding uncut areas.
10. Ground-return telephone lines, if a right-of-way has not been cleared.
11. Watershed treatment areas if the use of mechanical equipment is not evident.

The Forest Service Handbook also notes exceptions for roadless areas “east of the 100th meridian.”

### **1909.12, Chapter 7, 7.11b**

1. The land is regaining a natural, untrammelled appearance.
2. Improvements existing in the area are being affected by the forces of nature rather than humans, and they are disappearing or muted.
3. The area has existing or attainable National Forest System ownership patterns, both surface and subsurface, that could ensure perpetuation of identified wilderness values.
4. The location of the area is conducive to the perpetuation of wilderness values (consider the relationship of the area to sources of noise, air and water pollution; as well as unsightly conditions that would have an effect on the wilderness experience. The amount and pattern of federal ownership is also an influencing factor.
5. The area contains no more than a half mile of improved road for each 1,000 acres, and the road is under Forest Service jurisdiction.
6. No more than 15 percent of the area is in non-native, planted vegetation.
7. Twenty percent or less of the area has been harvested within the past 10 years.
8. The area contains only a few dwellings on private lands and the location of these dwellings and their access insulate their effects on the natural conditions of federal lands.

### ***Eastern Region Direction***

The Regional Forester, in his August 1997 letter (USDA Forest Service 1997b) to the Eastern Region Forests, provides more specific interpretation of the FSH 1909.12 for application to the Eastern Region. Included in this interpretation is direction to “re-inventory” RARE II areas (as identified in the Nationwide Environmental Impact Statement of January, 1979) to determine if they still qualify for inclusion in the inventory. If a portion of the RARE II area no longer qualifies, the boundary can be modified to “exclude only that portion that no longer qualifies.”

The direction to inventory potential roadless areas is not limited to RARE II areas, but extends to “all other National Forest System lands.” The Regional Forester also emphasizes that the inventory should be thorough and free of bias or “data filters.”

The Regional Forester’s letter provides clarification and specific direction for both the primary criteria and the exceptions listed in the FSH, including:

1. Identifying core areas which meet the semi-primitive criteria described in the 1982 Forest Service Recreation Opportunity Spectrum (ROS) Users Guide. Such semi-primitive core areas should contain approximately 2,500 acres (unless they are contiguous to an existing wilderness). The ROS Users Guide further states that this semi-primitive core area must be “at least ½-mile but no further than 3 miles from all roads, railroads or trails with motorized use; can include the existence of primitive roads and trails if usually closed to motorized use.”
2. Non-native, planted vegetation includes wildlife openings, seeded roads, non-native tree plantations, etc.
3. To determine how much of an area has been “harvested,” use regeneration cuts under even-aged management systems only, including seed-tree, shelterwood, or clearcuts. Thinnings or uneven-aged harvests (individual or group selection) are not counted as “harvest.”
4. Boundaries for potential roadless areas should follow natural or relatively permanent human-made features, including:
  - a. Natural features such as live streams, well-defined ridges or drainages.
  - b. Human-made features such as roads, trails, dams, power lines, pipelines, bridges, property lines, and state or forest boundaries.
  - c. Boundaries should not cross power lines, state/county roads or major access roads.
  - d. Narrow, elongated, gerrymandered areas are not suitable; the boundary should provide an easily managed area.
  - e. Cherry-stemming boundaries around roads into or through roadless areas is not appropriate.
  - f. Roadless areas can contain less than 70 percent federal ownership, but only if it is realistic to manage the federal lands as wilderness, independent of the private land; and continue to provide traditional access to private lands.
  - g. Locate boundaries to avoid conflict with important existing or potential public uses outside the boundary, which could result in non-conforming demands on the area if it were to become a wilderness.
5. Normally, roads under state, county, township, or other ownerships are not included in a roadless area since the Forest Service does not have authority to regulate use on those roads.
6. The Regional Forester identified improvements which are not permitted in a roadless area, including:
  - a. Significant current mineral activity.
  - b. Areas with prospecting with mechanical earth moving equipment.
  - c. Significant developed recreation sites judged difficult to obliterate and rehabilitate.
  - d. Active railroads and abandoned railroad beds that have cuts and fills, old trestles, abutments, and cinder surfacing.
  - e. Pipelines, transmission lines, and utility corridors.
  - f. High standard trails with surfaces, difficult to rehabilitate to primitive standards.

## **Improved Roads**

As stated previously, Forest Service Handbook 1909.12, Chapter 7.11(b) (5) states that “Roadless Areas east of the 100th meridian” shall have “no more than a half mile of improved road for each 1,000 acres and the road is under Forest Service jurisdiction.”

In August 1997 (USDA Forest Service 1997b), the Regional Office provided two definitions of an “improved road”:

1. An improved road is any constructed or existing feature or facility created on the land for the purpose of travel by passenger vehicles (four wheeled, 2 wheel drive), which are legally allowed to operate on forest roads or public roads and highways, and vehicles are greater than 50 inches in width. Said facility will have an area for vehicles to travel on and will incorporate some manner for the disposal of surface runoff.
2. An improved road has a definable, constructed cross-section, is properly drained, may or may not be surfaced, and is useable by most vehicle types. Some roads may be useable by high clearance vehicles. It is also stable for the predominant traffic during the normal use season. All roads assigned an objective maintenance level (OML) of 3, 4 or 5 in the Forest Development Transportation Plan are improved roads maintained for travel by standard passenger cars. OML 1 (roads closed to vehicle use for one year or longer) and OML 2 (roads maintained for high clearance vehicles such as pick-ups, 4x4's, etc.) are ‘improved roads’ if they meet the above description.

## **1964 Wilderness Act – Semi-Primitive Core - ROS**

The 1964 Wilderness Act, Section 2 (c) (2) provides a number of values to define wilderness including “outstanding opportunities for solitude or a primitive and unconfined type of recreation.” To analyze the need to provide “solitude” or a “primitive and unconfined type of recreation,” a semi-primitive core area is desired in potential roadless inventory areas.

FSH 1909.12 Chapter 7, 7.11b, #4 notes exceptions to be applied during the inventory process in regards to location of areas and perpetuation of wilderness values. It states: “The location of the area is conducive to the perpetuation of wilderness values consider the relationship of the area to sources of noise, air and water pollution; as well as unsightly conditions that would have an effect on the wilderness experience. The amount and pattern of federal ownership is also an influencing factor.” The Recreation Opportunity Spectrum (ROS) was utilized as a tool to help define solitude and a primitive and unconfined type of recreation.

The ROS (USDA Forest Service 1982) is a land management concept embracing the assignment of recreation settings and environments, as well as activities, to portions of National Forest System lands. Recreation opportunity classes form an important part of the land management prescription. The 1982 ROS Users Guide provides general guidelines for six recreation opportunity classes; urban, rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized, and primitive. They are defined using physical, social, and managerial criteria. These are the basic recreation building blocks that are used in the Forest Planning Process.

The Regional Forester in his August 1997 letter (USDA Forest Service 1997b), provides direction to quantify solitude or a primitive and unconfined type of recreation during a Forest Plan revision roadless area inventory utilizing semi-primitive non-motorized ROS criteria.

1. Semi-primitive ROS lands provide the solitude or primitive nature needed to meet roadless area inventory criteria. Lands providing primitive recreation also would meet the roadless area inventory criteria, but there are few areas in the eastern US that qualify under the primitive ROS classification.
2. To meet roadless area inventory criteria, a “core” of the roadless area must be manageable for conditions that would be classed as primitive or semi-primitive non-motorized.

In regards to wilderness and other special areas, the 1982 ROS Users Guide notes (USDA Forest Service 1982): “although some designated wildernesses are composed largely of the primitive type of recreation opportunity, many designated wildernesses also include semi-primitive or roaded-natural opportunities.” For the Ottawa, and as recommended in the Eastern Region direction (USDA Forest Service 1997b), the criteria for a semi-primitive non-motorized (SPNM) ROS experience were used as the standard for identifying semi-primitive core areas in potential roadless inventory areas.

The 1982 ROS Users Guide (USDA Forest Service 1982) details three components in defining and mapping ROS class delineations – physical, social, and managerial criteria. The characteristics of each “affect the kind of experience the recreationist most probably realizes from using the area.”

1. The setting components for the physical setting includes: remoteness, size, and evidence of humans.
2. The setting component for the social setting includes: user density.
3. The setting components for the managerial setting includes: managerial regimentation and noticeability.

### ***Detail – Semi-Primitive Core***

The following ROS class delineation setting components and mapping criteria for semi-primitive non-motorized are found in the 1982 ROS Users Guide (USDA Forest Service 1982).

1. **Remoteness:** “An area designated at least ½-mile but not further than 3 miles from all roads, railroads or trails with motorized use; can include the existence of primitive roads and trails if usually closed to motorized use.”
  - a. Application: The following corridors and geographical features were assigned a ½ mile buffer during Step One of the GIS mapping exercises to outline a semi-primitive core area during initial polygon creation:
    - i. All OML 3 or better roads
    - ii. All power lines, pipelines and utility corridors
    - iii. All existing active railroad grades

- iv. All designated motorized trails – snowmobiles and ATV (includes Michigan and Ottawa designated snowmobile and ATV trails, and county roads designated as ATV travel routes)

Other factors of remoteness include topographic and vegetative differences of the mapped area. Included in this was consideration of the shape of the area which was considered in the overall review of the area.

2. **Size:** 2,500 acres. “Situations where an area identified on the remoteness overlay is slightly smaller than the size criteria for a primitive or semi-primitive class – or the area is a unique entity for some other reason – may require individual consideration.”
  - a. Application: Settings over 2,500 acres met the basic qualification for the SPNM experience. Some settings with a semi-primitive core area less than 2,500 acres received individual consideration to determine if they had other roadless characteristics.
3. **Evidence of Humans:** “Natural-appearing settings may have subtle modifications that would be noticed but not draw the attention of an observer wandering through the area. Little or no evidence of primitive roads and the motorized use of trails and primitive roads.”
  - a. Application: Settings with a density of improved roads (in accordance with FSH and Eastern Region direction) in excess of 0.5 mile/1,000 acres were disqualified from further consideration. Other factors considered were presence of dwellings or other improvements within the area.
4. **User Density:** “Usually 6-15 parties per day encountered on trails and 6 or less visible at campsites.”
  - a. Application: User density was not a primary or contributing factor, since there is little data on use of dispersed recreation within the Ottawa. If a setting was known to have use on the scale listed in the criteria, it could then be taken into account.
5. **Managerial:** “On-site regimentation and controls present but subtle. Controls can be physical (such as barriers) or regulatory (such as permits).”
  - a. Application: Managerial setting was not a primary factor, but contributed to the analysis of an area. For example private inholdings and access needs were considered.

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## Description of Steps in the Ottawa Roadless Area Inventory

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### Step One - Initial polygon creation

Linking GIS and INFRA databases, the Ottawa was mapped into polygons by selecting roads that were under federal, state, and county jurisdiction along with Forest Service objective maintenance levels 3, 4 and 5 system roads. In this step, only the “through” roads, that is, those that connect to each other were used. Dead end or “dangling” roads as identified above were looked at in Step 3. Active railroads, designated snowmobile and OHV trails, and utility corridors were added to the same coverage for creation of polygons. The result was 1,639 initial polygons. Data calculations showed that 94% of the polygons had a total area less than 5,000 acres and with 85% of them having a total area less than 2,500 acres.

A ½ mile buffer was applied to the 1,639 polygons to identify a semi-primitive core area that would provide a potential area that could be conducive to wilderness values. If the polygons did not contain a semi-primitive core area of at least 2,000 acres they were not carried forward because they had a low probability of providing reasonable certainty of solitude or a primitive and unconfined type of recreation. The result was 1,567 polygons were dropped due to small size with the following exceptions. Two polygons contiguous to wilderness with less than 2,000 semi-primitive core acres were carried forward to Step Two. The Trap Hills had a semi-primitive core area less than 2,000 acres but was carried forward to Step Two for further consideration.

Summary Result: 71 polygons carried forward to Step Two.

### **Step Two - Calculate road density**

OML 1 and 2 roads were not utilized for creation of polygons in Step One. Many of the OML 1 and 2 roads are dead end roads; however some of them are through roads. The condition of these roads varies, depending on soil type, constructed road features, or surface improvements. Although assigned at an OML 1 or 2, some roads meet the definition of improved and are drivable. This cannot be discerned in GIS coverage; therefore, district specialists on the ID team identified improved roads on polygon maps. Improved roads were identified through field knowledge of road conditions. In addition, on-the-ground assessments were conducted for roads conditions in question. Improved roads were manually coded into GIS and road densities were computed.

Summary Result: Road densities calculated for data purposes, no areas were dropped.

### **Step Three - Assess private parcels, adjust boundaries**

Initial polygon creation in Step One did not include an assessment of private ownership, inholdings, dwellings, or improvements in the area. Step 3 included boundary adjustments based on an assessment of surface ownership patterns and amount, improvements, dead end OMLs 3, 4 and 5 roads, and dead end roads under other jurisdictions.

The Ottawa is fairly contiguous compared to other Eastern Region National Forests; however there are large tracts of private lands many of which are owned by corporate timber companies within the administrative boundary. There are also numerous smaller to medium sized parcels of privately owned lands scattered throughout the forest that contain homes, hunting camps, or other constructed features and improvements.

Where logical, boundaries were adjusted by the ID team to exclude the majority of private ownerships and improvements on the edge of the polygons. A few small parcels near the edges of polygons were not practical to exclude. Some smaller private “inholdings” were also left in the polygons as it was not possible or practical to exclude all private lands. Polygons were not dropped during this stage because of the private inholdings, but ownership patterns and amount were a factor in the overall review of the area.

Boundaries were adjusted by utilizing a discernable ground attribute such as a road or water body feature. Due to the relative absence of topographic relief, it was not practical to utilize

topography such as ridges, peaks, or valleys. When it was not practical to locate a discernable ground attribute to exclude private ownerships, the ownership boundaries on the map were used to reconfigure the area.

During this step boundaries were also adjusted to exclude “dangling” (dead end) improved roads. Because these improved roads (mostly paved or gravel county or Forest Service OML 3 roads) were not “through” roads, they could not be utilized by GIS in Step One for boundary identification of polygons but were included within the area.

The result of boundary reconfiguration was an area that contained a higher percent of surface Forest Service land ownership providing a better potential inventory area.

Boundaries were not adjusted on some areas for the following reasons: there were little to no private lands on the edge of the polygon to exclude; there was excessive private ownership with no practical way to reconfigure the polygon for further work; or it was obvious that boundary adjustments would result in higher road densities for areas that were already exceeded the road density criteria (more than 0.5 mile/1000 acres) based on calculations from Step Two.

Boundary adjustments were made on 46 of the 71 areas. Two of the boundary adjustments resulted in split polygons. Polygon boundaries were adjusted in GIS and semi-primitive core area size recalculated. A ½ mile buffer was not applied to the new boundary lines as the boundary adjustments often resulted in moving the total area boundary line away from the features that were used in Step One to initially create the areas. However, the buffers that remained on the boundary lines from Step One that were not adjusted were kept in place.

Semi-primitive core area sizes were recalculated. Thirteen areas with less than 2,000 semi-primitive core acres that did not meet other inventory criteria were dropped.

Summary Result: 60 polygons carried forward to Step Four.

#### **Step Four - Calculate Timber Harvest, Calculate % Ownership**

Utilizing stand layers, the CDS database accomplishment table, and CDS activity codes timber harvest was calculated (stands that have been harvested, or sold but not cut with even aged methods in the last 10 years). Areas that had 20% or less timber harvest in the last 10 years were carried forward. One area was dropped due to timber harvest over 20%.

The percent of Forest Service surface ownership for each area was calculated. Areas with 70% or greater Forest Service ownership were carried forward. Twelve areas were dropped due to private ownership amount (greater than 30% private ownership). Although these polygons were reviewed in Step Three, there was no practical way to reconfigure the polygons and increase federal ownership patterns and amount in order to have an area that was practical or realistic to manage as wilderness independent of private land.

Summary Result: Fifteen areas were dropped that did not meet timber harvest or ownership criteria, 47 areas carried forward to Step Five.

**Step Five – Recalculate Road Density**

Road densities were recalculated for polygons with new boundaries. Those areas with greater than 0.5 miles of improved road per 1000 acres were dropped. In all, 46 areas were dropped due to high road density. Included were both areas contiguous to wilderness (Areas 19 and 22), the Norwich IRA (Area 15), and the Trap Hills area (Area 40) all dropped due to high road density.

Summary Result: One area carried forward to Step Six.

Table B-1 shows a summary of the roadless inventory.

Table B-1. Roadless Inventory Summary for Ottawa National Forest

<b>Forest Plan Revision Roadless Inventory Summary Table - Ottawa National Forest November 2004</b>									
<b>Area Number</b>	<b>Semi-Primitive Core Acres Step 1 Calculation</b>	<b>Boundary Adjusted Step 2</b>	<b>Semi-Primitive Core Acres Step 3 Calculation</b>	<b>Total Acres Step 3 Calculation</b>	<b>% Timber Harvest Step 4 Calculation</b>	<b>% FS Surface Ownership Step 4 Calculation</b>	<b>Road Density Step 5 Calculation</b>	<b>Summary "Yes" if qualified for new Forest Roadless Inventory or Primary and Contributing Reasons Removed</b>	<b>Notes</b>
1	7,320	Y	3,106	5,344	0	86	0.75	PR, CI, CD, CA	resulted from split
2	18,050	Y	14,141	16,074	0	99	0.00	Yes	Ehlco
3	4,605	Y	2,994	4,448	17	98	0.73	PR, CS, CA	
4	4,167	Y	3,383	5,592	3	100	1.61	PR, CA, CS	
5	3,235	Y	2,257	3,919	1	99	1.51	PR, CI, CA	
6	3,137	N	3,137	6,854	15	63	NC	PO, CI, CD	
7	26,537	N	26,537	39,558	0	7	NC	PO, CI, CD, CA	
8	20,159	N	20,159	31,621	0	26	NC	PO, CI, CD, CA	
9	34,757	N	34,757	43,656	0	31	NC	PO, CI, CD, CA	
10	4,080	N	4,080	9,033	24	98	1.52	PH, CI, CS	
11	7,320	Y	2,401	4,920	7	98	1.15	PR, CI, CS, CA	resulted from split
12	20,918	Y	12,494	20,246	10	96	0.57	PR, CI, CD, CS	
13	20,153	Y	16,206	26,264	10	89	0.66	PR, CI, CD, CA	
14	19,357	N	19,357	29,146	0	5	NC	PO, CI, CD, CA	
15	6,689	Y	5,723	10,117	6	100	0.65	PR, CS, CD, CI	Norwich IRA
16	18,186	Y	16,548	25,662	9	98	1.42	PR, CI, CD, CA	
17	7,339	Y	2,350	3,673	0	100	1.41	PR, CS, CA	
18	9,935	Y	2,898	5,093	2	98	0.94	PR, CI, CS	
19	7,129	Y	1,037	2,748	0	99	2.41	PR, CI, CD, CA	Adjacent to SRGW
20	2,243	Y	2,011	4,793	1	100	2.89	PR	
21	4,643	N	4,643	10,725	0	8	NC	PO, CI, CD, CA	
22	2,192	N	2,192	3,918	7	97	1.01	PR, CI, CD, CA,	Adjacent to SRGW
23	17,215	N	17,215	34,997	1	55	NC	PO, CI, CD, CA, CS	
24	3,370	N	3,370	7,693	9	83	0.88	PR, CI, CD, CA	
25	7,082	N	7,082	12,713	5	93	1.10	PR, CI, CD, CA	

<b>Area Number</b>	<b>Semi-Primitive Core Acres</b> <i>Step 1 Calculation</i>	<b>Boundary Adjusted</b> <i>Step 2</i>	<b>Semi-Primitive Core Acres</b> <i>Step 3 Calculation</i>	<b>Total Acres</b> <i>Step 3 Calculation</i>	<b>% Timber Harvest</b> <i>Step 4 Calculation</i>	<b>% FS Surface Ownership</b> <i>Step 4 Calculation</i>	<b>Road Density</b> <i>Step 5 Calculation</i>	<b>Summary</b> "Yes" if qualified for new Forest Roadless Inventory or Primary and Contributing Reasons Removed	<b>Notes</b>
26	6,268	N	6,268	14,840	2	32	NC	PO, CI, CD, CA	
27	12,496	Y	6,824	11,543	17	95	0.87	PR, CI, CD, CS, CA	
28	4,783	Y	4,251	9,956	0	90	0.80	PR, CI, CS	
29	3,572	N	3,572	11,084	3	69	1.00	PO, PR, CD, CI, CA	
30	2,702	N	2,702	9,325	2	75	2.14	PR, CI, CD, CA	
31	12,306	Y	2,026	4,651	0	6	0.54	PO, PR, CI, CD, CA	resulted from split
32	4,739	N	4,739	9,467	3	64	NC	PO, CI, CD, CA	
33	4,356	Y	4,356	9,107	4	90	1.89	PR, CI, CD, CA	
34	2,726	Y	2,346	5,332	4	85	1.19	PR, CI, CD, CS, CA	
35	3,172	Y	3,045	7,852	1	84	2.02	PR, CI, CD, CS, CA	
36	12,306	Y	8,975	12,817	3	98	0.57	PR, CS, CI	resulted from split
37	3,137	Y	3,137	8,030	0	34	NC	PO, CI, CD, CA	
38	4,193	Y	2,084	7,111	3	98	0.99	PR, CI, CS, CA	
39	5,865	N	5,865	12,451	3	74	1.00	PR, CI, CD, CS, CA	
40	1,937	N	1,937	6,971	0	78	0.55	PR, PC, CI, CD, CA	Trap Hills
41	2,154	N	2,154	5,691	0	94	0.58	PR, CI, CD, CA	
42	2,248	Y	2,239	5,179	5	98	0.93	PR, CI, CD, CA, CS	
43	5,823	N	5,823	14,182	3	97	0.69	PR, CI, CD, CS, CA	
44	2,770	Y	2,770	7,477	1	97	1.50	PR, CI, CA	
45	4,338	N	4,338	9,556	6	98	0.62	PR, CI, CS, CA	
46	7,543	N	7,543	15,308	3	90	0.87	PR, CI, CD, CA	
47	5,446	Y	4,413	7,196	0	100	0.61	PR, CD, CA	
48	4,521	Y	2,938	5,822	0	99	1.02	PR, CS, CA	

<b>Area Number</b>	<b>Semi-Primitive Core Acres</b> <i>Step 1 Calculation</i>	<b>Boundary Adjusted</b> <i>Step 2</i>	<b>Semi-Primitive Core Acres</b> <i>Step 3 Calculation</i>	<b>Total Acres</b> <i>Step 3 Calculation</i>	<b>% Timber Harvest</b> <i>Step 4 Calculation</i>	<b>% FS Surface Ownership</b> <i>Step 4 Calculation</i>	<b>Road Density</b> <i>Step 5 Calculation</i>	<b>Summary</b> "Yes" if qualified for new Forest Roadless Inventory or Primary and Contributing Reasons Removed	<b>Notes</b>
49	9,383	Y	2,758	4,829	1	100	0.71	PR, CS, CA	
50	2,564	N	2,564	6,699	3	94	1.37	PR, CI, CA, CS	
51	3,667	Y	2,355	3,820	2	100	0.89	PR, CS, CA	
52	5,578	Y	2,724	4,131	0	96	1.31	PR, CI, CD, CS, CA	
53	7,252	Y	3,716	5,541	3	99	1.21	PR, CS, CA	
54	3,029	Y	2,005	4,979	3	99	1.37	PR, CI, CA	
55	6,058	N	6,058	12,447	1	99	0.91	PR, CI, CD	
56	29,831	N	29,831	46,571	1	31	NC	PO, CI, CD, CS, CA	
57	5,922	Y	4,480	8,366	3	97	1.16	PR, CI, CD, CS, CA	
58	3,157	Y	1,674	3,397	0	100	0.00	PC, CA,	
59	4,968	Y	3,940	6,965	0	99	0.79	PR, CI, CD, CS, CA	
60	5,006	Y	2,307	3,649	14	96	1.72	PR, CI	
61	3,987	Y	1,706	3,791	12	97	0.93	PC, PR	
62	4,570	Y	1,546	3,985	3	100	1.46	PC, PR	
63	5,713	Y	1,531	2,760	0	100	1.34	PC, PR	
64	3,356	Y	1,095	2,340	1	94	NC	PC, CI, CD, CS, CA	
65	5,252	Y	1,673	3,726	0	97	NC	PC, CI, CS, CA	
66	2,823	Y	821	1,756	0	100	NC	PC, CA, CS	
67	3,280	Y	1,054	2,322	1	98	NC	PC, CA, CS	
68	6,166	Y	904	2,112	0	98	NC	PC, CA, CS	
69	6,984	Y	1,910	3,415	0	94	1.82	PC, PR, CI, CA, CS	
70	3,505	Y	1,252	2,695	0	100	0.66	PC, PR, CS, CA, CD	
71	4,347	Y	617	1,056	0	94	3.00	PC, PR, CA	
72	2,165	Y	1,551	3,767	2	94	NC	PC, CI, CD,	
73	3,902	Y	1,326	2,866	11	100	NC	PC, CS, CA	

<b>Table Notes:</b>
SRGW = Sturgeon River Gorge Wilderness
NC = not calculated. Road densities were not calculated for several areas, due to high % private ownerships, small semi-primitive core areas, and contributing reasons (see below).
Maps for each potential area showing boundaries, ownership, roads, dwellings, and other features are located in the administrative record.
<b><u>Primary Reasons an area was removed from further consideration</u></b>
PC = Semi-primitive core area less than 2,000 acres PO = Areas with less than 70% federal ownership and deemed unmanageable as wilderness due to ownerships PH = Timber harvest greater than 20% (as defined in roadless inventory criteria) PR = Road density greater than 0.5 miles/1000 acres
<b><u>Contributing reasons an area was removed from further consideration</u></b>
CI = Effects of private inholdings CD = Dwellings or other improvements within the area CS = Poor shape (i.e., gerrymanders, narrow, cherry stems, "amoeba" like shapes) CA = Effects of developed adjacent land, containing features such as dwellings, campgrounds, motorized trails, highways, or other features

### Step Six – ID Team Review

The ID team assessed a number of criteria including: whether the area was regaining a natural untrammled appearance, whether the improvements were being affected primarily by the forces of nature, the surface and subsurface ownership patterns, shape, dwellings and access needs, non-native planted vegetation, roads, trails, timber harvest, and whether the area location is conducive to perpetuate wilderness values. Based upon the analysis, the team provided a recommendation as to whether the area met inventory criteria and should be recommended for wilderness evaluation.

Summary Result: The Ehlco area (Area #2) is recommended for wilderness evaluation.

ID team work is recorded in the matrix presented in the table below:

**Table B-2. Inventory for Potential Roadless Area, Area 2**

<b>Inventory Criteria</b>	<b>Information</b>
Total Acres	16,074
Semi-Primitive Core Acres	14,141
1. Area regaining a natural, untrammled appearance	This area was heavily cutover and heavily roaded prior to FS ownership in 1969. Old roads evident. North Country National Scenic trail (NCT) runs W/E through area, and 15 of 27 miles of the Elcho Mountain Bike Trail circumnavigate the area.
2. Improvements in area are affected primarily by forces of nature and are disappearing/muted	Two steel frame bridges installed on NCT in 2003, 120' and 100'. Excavator used to install bridges and create access for installation. Improved bridge approaches. Marked mountain bike trails.
3. Area has existing or attainable NFS ownership patterns, surface/subsurface	96% private outstanding and reserved mineral rights 99% FS surface ownership. Two private inholdings.
4. Area location is conducive to wilderness values. Consider outside influences and amount and pattern of federal ownership.	Adjacent to Porcupine Mountain Wilderness State Park, private industrial lands and other private lands. Heavy timber cutting on industrial lands, developed camp and picnic areas in State Park, and private dwellings/improvements, OHV use in area
5. No more than ½ mile improved road per 1000 acres	0 miles/1,000 acres
6. 15% or less of area has non-native planted vegetation	Yes, less than 15%.
7. 20% or less of area harvested in last 10 years	Yes, 0% harvest
8. Only a few private dwellings or access needs to dwellings in area	One private dwelling inholding in semi-primitive core area with access needs. No dwelling on other inholding

## **Summary**

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As a result of the inventory only one area on the Ottawa National Forest has been identified as a candidate for wilderness evaluation. This area is identified as the Ehlco Roadless Inventory Area (Area #2 as listed in Tables B-1 and B-2).