Visual Quality Best Management Practices for Forest Management in Minnesota

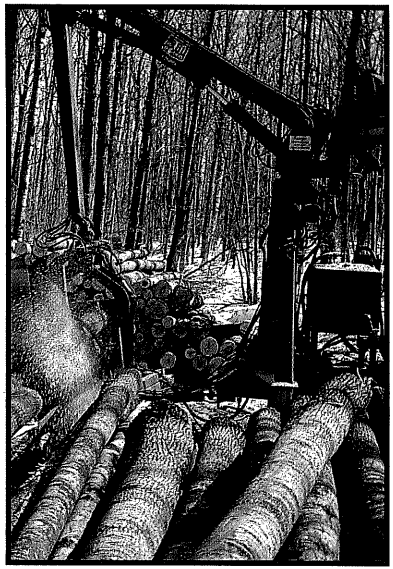
Cover photos courtesy of Minnesota Department of Tourism (left), Potlatch Corporation (center) and Dorian Grilley (right)

Visual Quality Best Management Practices for Forest Management in Minnesota

Prepared in cooperation with:
Congress of Minnesota Resorts
Minnesota Association of Land Commissioners
Minnesota Department of Natural Resources
Minnesota Forest Industries
Minnesota Hotel and Lodging Association
Minnesota Resort Association
Minnesota Restaurant Association
Minnesota Timber Producers Association
Minnesota Tree Farm System
U.S. Forest Service, U.S. Department of Agriculture

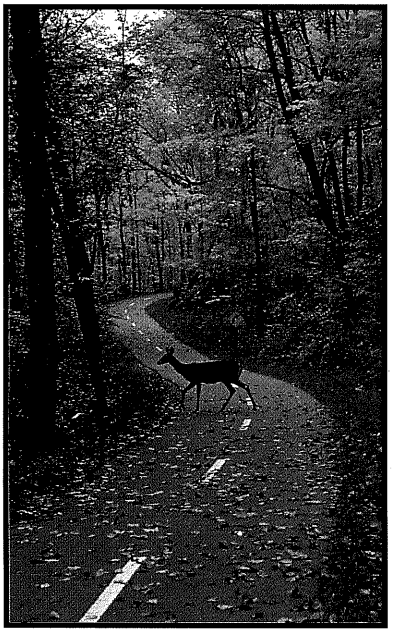
May 1994

Editing, design and layout: Schroeder Communications
Illustration: Susan M. Davies

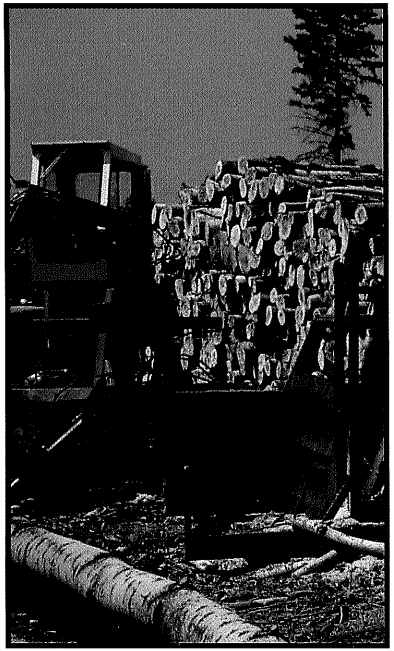


The goal of these guidelines is to improve forest resource management through the development and implementation of voluntary management guidelines that are reasonable, achievable and cost effective. *Photo courtesy of Potlatch Corporation*

Contents



Integrated resource management can help to assure a balance among the varied demands on the forest. *Photo courtesy of Minnesota Department of Tourism*



Visual quality BMPs can assist in balancing the use of forested areas by both timber and tourism industries. *Photo courtesy of Itasca County Land Department*

INTRODUCTION

The Audience: Forest Managers and Loggers

This document has been written for forest managers and loggers. The best management practices (BMP) guidelines are designed to provide forest managers and loggers with the tools to voluntarily implement visual quality BMPs into an overall integrated resource management approach to forest management operations.

Integrating visual quality BMPs is not always a simple process. Implementing BMPs requires recognizing the limitations and consequences related to particular management activities. These considerations are addressed in Part IV.

Implementing BMPs requires recognizing constraints and implications related to particular management activities.

For ease of reference, this document is divided into five sections:

❒ ***Part I: Laying the Groundwork*** explains the concerns and the process that led to the cooperative development of these practices.

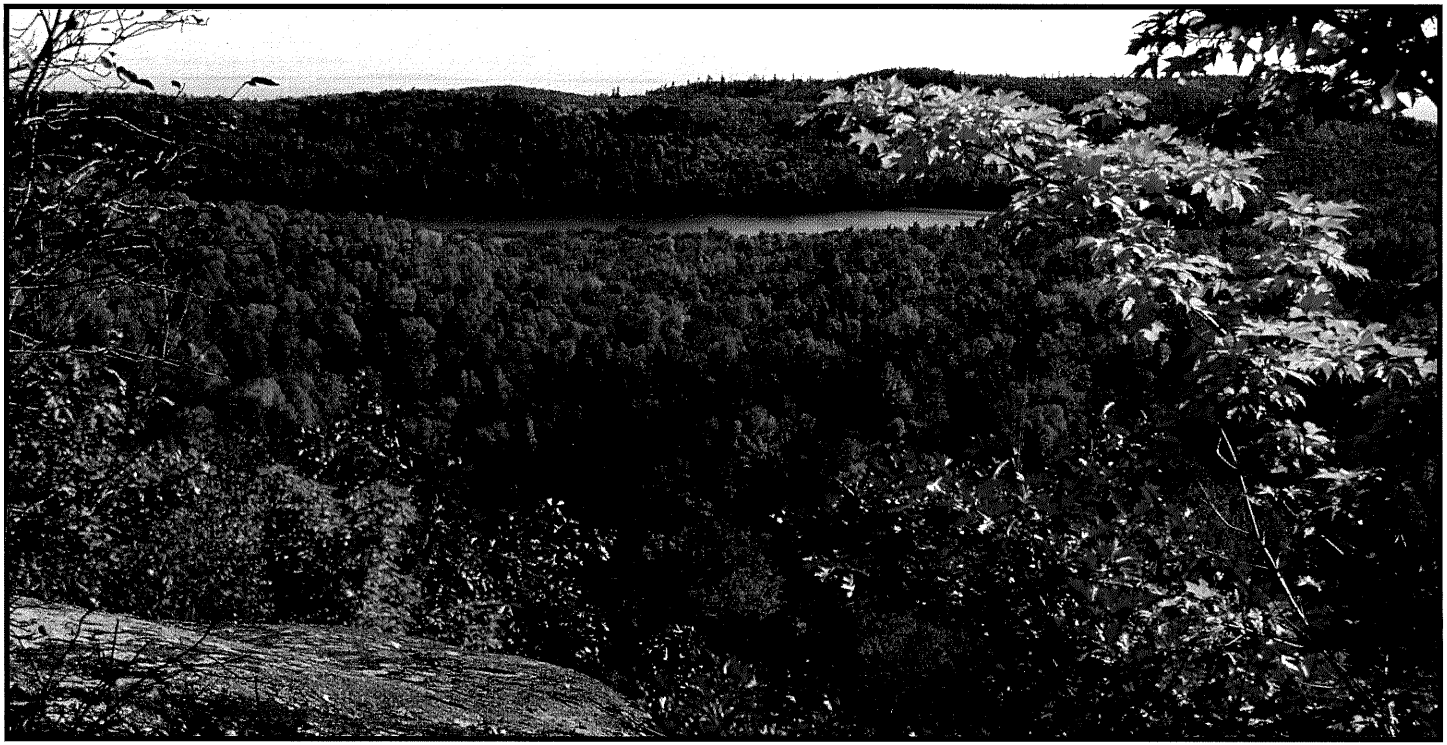
❒ ***Part II: Visual Management Planning*** describes the concept of visual management planning.

❒ ***Part III: Classifying of Sensitive Visual Management Areas*** outlines the factors used in determining classifications, the three classifications themselves, and the classification process.

❒ ***Part IV: Recommended Visual Quality BMPs for Forest Management*** describes 11 forest management activities and offers recommendations for enhancing visual quality for each of the three sensitivity levels.

❒ ***Part V: Training, Implementation and Monitoring*** explains the factors that will determine the long-term success of this effort.

Part IV describes 11 forest management activites and offers recommendations for enhancing visual quality for each of the three sensitivity levels.



Scenic quality is one of the primary reasons people choose to spend their recreation time in or near forested areas. *Photo courtesy of Dorian Grilley*

Visual Quality Management: One Aspect of Integrated Resource Management

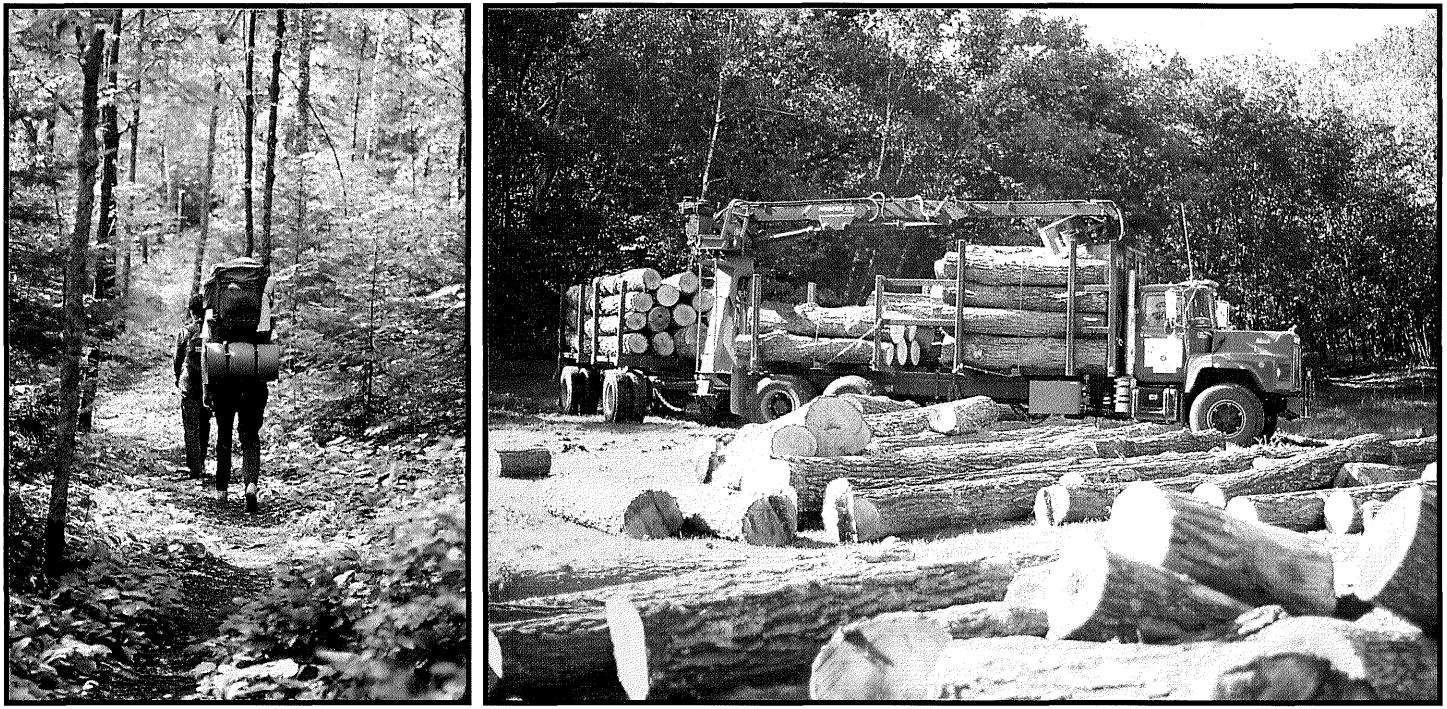
Visual quality management is one important aspect of the broad, multi-faceted concept of integrated forest resource management. The goal of this document is to provide assistance to forest managers, loggers and forest landowners in integrating visual quality BMPs into their overall integrated resource management plans and management approaches.

PART I LAYING THE GROUNDWORK

A Concern for Aesthetic Quality

Minnesotans are concerned about the aesthetic quality of our state's forests, which are a great source of pride for our citizens. Scenic quality is one of the primary reasons people choose to spend their recreation and vacation time in or near forested areas.

Minnesotans are concerned about the aesthetic quality of our state's forests, which are a great source of pride for our citizens.



Minnesota forests are particularly vital to the health of two industries: tourism and forest products. *Photos courtesy of Minnesota Department of Tourism (left) and Minnesota Timber Producers Association (right)*

Minnesota forests are particularly vital to the health of two industries: tourism and forest products. While many of the demands on the forests from these two industries are compatible and even complementary, concern about the specific impacts of various forest management practices on visual aesthetics became the focus for a positive dialogue among major tourism and forest products interests. These two industries also recognized that many other special interest groups would benefit from this dialogue as well.

A Cooperative Commitment To Developing Voluntary Guidelines

Representatives of the Minnesota Resort Association and the Minnesota Forest Industries began meeting in the fall of 1990, and the Timber and Tourism Steering Committee was formed to enhance communication, promote understanding and discuss common concerns. These meetings resulted in two recommendations:

- ❒ To develop a set of BMPs for visual quality in forest management.
- ❒ To implement a comprehensive information/education program.

The Timber and Tourism Committee was formed to enhance communication, promote understanding and discuss common concerns.

The committee includes representatives of the following groups:

- ❒ Congress of Minnesota Resorts
- ❒ Minnesota Association of Land Commissioners
- ❒ Minnesota Department of Natural Resources
- ❒ Minnesota Forest Industries
- ❒ Minnesota Hotel and Lodging Association
- ❒ Minnesota Resort Association
- ❒ Minnesota Restaurant Association
- ❒ Minnesota Timber Producers Association
- ❒ Minnesota Tree Farm System
- ❒ U.S. Forest Service, U.S. Department of Agriculture

This document reflects the recognition of the mutual benefits to the timber and tourism industries of recognizing and addressing the visual concerns of recreational users. This document also represents a proactive effort by many individuals and organizations who share the belief that visual quality goals for Minnesota forests can best be attained through the development and ***adoption of voluntary guidelines, rather than through governmental regulation.***

The Goal: Improving Forest Resource Management

The goal of these guidelines is to improve forest resource management through the development and implementation of voluntary management guidelines that are reasonable, achievable and cost effective. These guidelines, which are referred to as visual quality best management practices (BMPs), are intended to be a companion to other BMP programs.

The goal of these guidelines is to improve forest resource management through voluntary guidelines that are reasonable, achievable and cost effective.

Four Action Steps To Achieve This Goal

The timber and tourism industries believe that cooperation, communication and education can result in significant benefits to both industries and to all forest users in Minnesota. The Timber and Tourism Steering Committee identified four action steps to achieve the goal of improved forest resource management:

1. ***Develop a set of best management practices*** (BMPs) for visual quality in the forested landscape through a cooperative, consensus-building process. This document represents completion of this first action step.

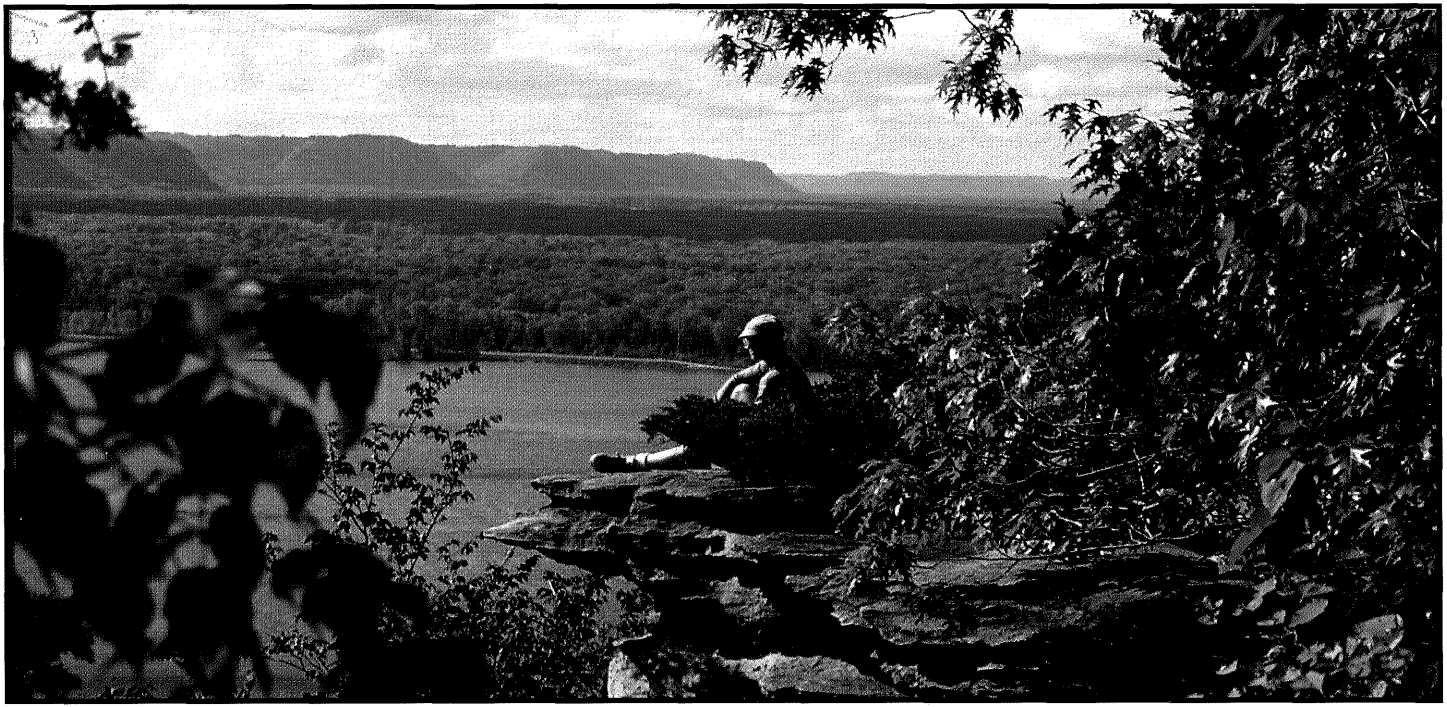
2. ***Develop and implement a cooperative information/education program*** for both tourism and forest products industries, as well as the general public.

3. ***Promote adoption of visual quality BMPs*** by the full spectrum of forest user groups to ensure uniform, cross-organizational application of guidelines.

4. ***Seek and secure funding*** to support implementation of these action steps.

Effective implementation of these BMPs requires providing information/education programs to those who have an interest in and responsibility for management of Minnesota's forest resources, to support their commitment to making appropriate site-specific and situation-specific decisions.

Cooperation, communication and education can result in significant benefits to the timber and tourism industries and to all forest users in Minnesota.



These guidelines offer a way to integrate management activities for visual quality with other resource management objectives for any given site. *Photo courtesy of Dorian Grilley*

Factors That May Affect Implementation of BMPs

Several factors may affect implementation of these practices:

- ❒ A number of federal and state regulations and guidelines already exist that seek to minimize the impact of forest management activities on the visual quality of Minnesota forestlands.

- ❒ Forest management practices outlined in this document may result in additional costs to landowners, timber producers or consumers.

- ❒ The diverse Minnesota landscape will require adapting these guidelines to address local site-specific situations, seasonal conditions and cost implications.

These visual quality BMPs are not intended to replace any existing rules or regulations. Instead, these guidelines offer a way to integrate management activities for visual quality with other resource management objectives for any given site.

The diverse Minnesota landscape will require adapting these guidelines to address local site-specific situations, seasonal conditions and cost implications.

PART II
VISUAL MANAGEMENT PLANNING

Developing Common Goals and Comprehensive Plans

Advance planning is recommended for each forest management activity as a proactive approach to visual resource management. Efforts may not involve the development of a formal plan, but they will require that a logger, manager or landowner give full consideration to a common goal identified through comprehensive planning efforts for managing a particular route or area.

Visual management planning involves the comprehensive planning of activities to achieve short-term and long-term management goals.

The concept of visual management planning involves the comprehensive planning of activities along a specific travel route, a segment of a travel route, or a recreation area to achieve short-term and long-term management goals. Goals and objectives developed as part of such a plan may address other issues as appropriate, including timber, recreation, wildlife or transportation uses.

Visual management planning may be initiated by any public agency or private organization. Two important considerations are involved:

- ❒ The cooperative effort required among land managers.
- ❒ The willingness to develop long-term goals for managing the route or area.

Development of a visual management plan involves identifying and scheduling potential projects or other management activities that will help achieve long-term goals. As projects are identified, opportunities for partnership efforts and coordination among public agencies or private land managers will become evident. Such opportunities may result in reductions in the areas of cost, duplication of effort, impacts on the environment and user conflicts.

PART III
CLASSIFYING SENSITIVE VISUAL MANAGEMENT AREAS

Defining Sensitive Visual Management Routes or Areas

Travel routes, segments of travel routes and recreation areas—including highways, roads, designated recreational trails, lakes and rivers, and recreation areas such as resorts, campgrounds and picnic areas—may be classified into one of three different levels of visual sensitivity. Three factors will aid in determining classifications:

- ❒ The perceived degree of sensitivity of users of that travel route or recreation area concerning landscape aesthetics.
- ❒ The volume and type of use the travel route or recreation area receives.
- ❒ The speed of travel within the route or area.

Travel routes, segments of travel routes and recreation areas may be classified into one of three different levels of visual sensitivity.

The Level 1 classification applies to travel routes or areas where significant public use occurs or where the visual quality is of high concern to typical users. *Photo courtesy of Minnesota Department of Tourism*

Three Classifications of Sensitivity

❒ *Level 1: Most Sensitive*

Level 1 applies to travel routes and areas where ***significant public use occurs*** and where the ***visual quality is of high concern*** to typical users. Examples of such routes may include public highways, local roads, recreational lakes and rivers, and designated recreational trails and areas that provide a high level of scenic quality.

❒ *Level 2: Moderately Sensitive*

Level 2 applies to travel routes or recreation areas, not included in Level 1, ***where visual quality is of moderate concern*** to typical users. Examples of these routes and areas may include public highways and local roads, recreational lakes and rivers, and designated recreational trails that provide ***moderate to high scenic quality*** but ***less significant public use.***

❒ *Level 3: Less Sensitive*

Level 3 applies to travel routes or recreation areas, not included in Levels 1 or 2, where ***visual quality is of less concern to typical users.*** Examples of these routes may include public highways and low-volume local forest roads, nondesignated trails, and nonrecreational lakes and rivers.

Sensitivity levels apply to public highways, local roads, recreational lakes and rivers, and designated recreational trails and areas.

The Classification Process: A Local, Cooperative, Consistent Approach

The goal of classifying sensitive visual management areas is to provide for consistent visual management, both along travel routes and in and around recreation areas, through cooperative planning and communication with adjacent landowners.

Classification of sensitivity levels should be a local decision by local managers and constituents, but the classification must also be sensitive to nonlocal users. Through this process, the concern for aesthetics by the users of each travel route or recreation area can be recognized and addressed.

These sensitivity levels and the criteria that determine them will provide statewide coordination and consistency in application. Committees in each county will coordinate the process for identifying visual quality sensitivity levels for local travel corridors and recreation areas. This process will be monitored periodically to assure consistency and effectiveness.

Those involved in the process will include representatives of local forest industries, tourism industries and government agencies, private forest landowners, loggers and other appropriate interests.

Classification of sensitivity levels should be a local decision by local managers and constituents— but the classification must also be sensitive to nonlocal users.

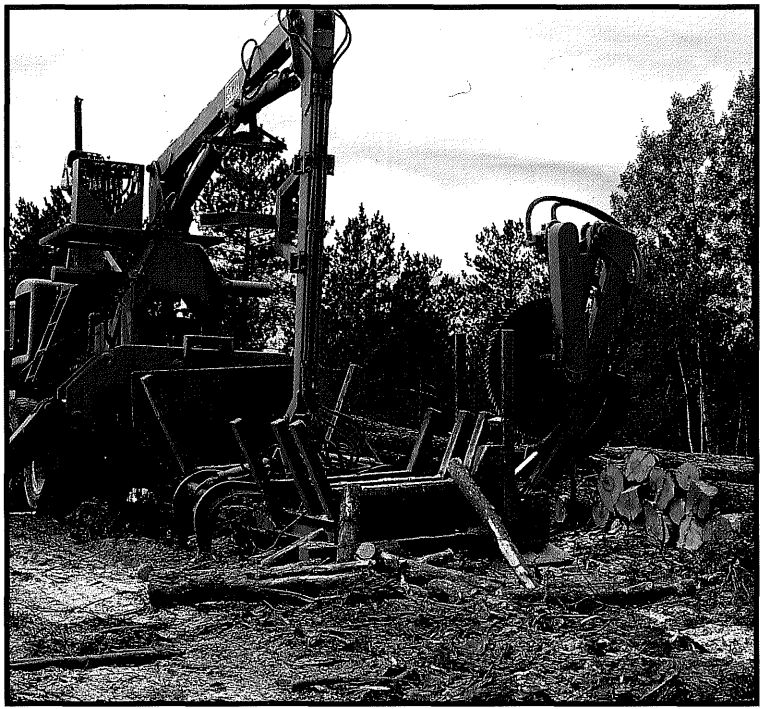
Visual quality sensitivity level classifications will be provided to local forest managers, loggers, government officials, and forest industries and tourism industries. Information will also be made available to the general public.

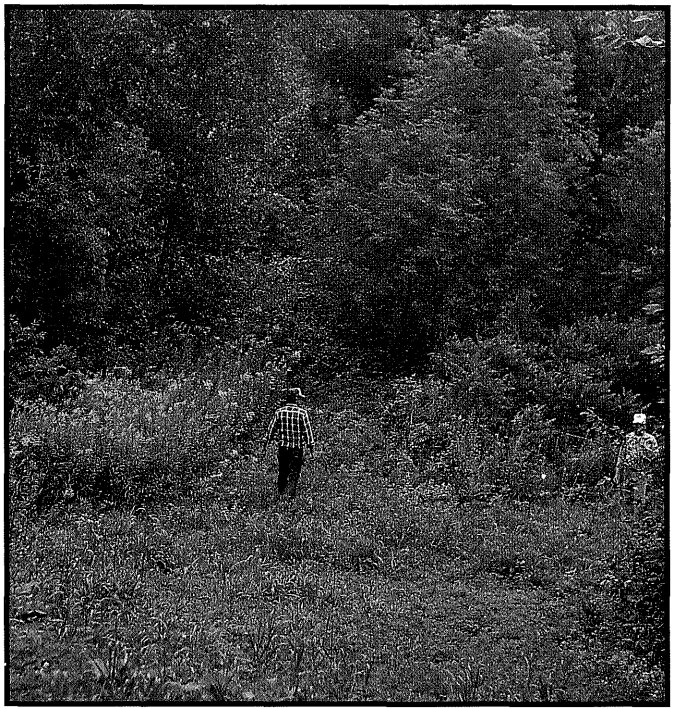
Until the Classification Process Is Under Way...

A consistent statewide process to assist the designated committees in each county in determining classification levels will be established. Until then, and until classifications for specific routes and areas are determined, forest managers will continue to depend on their knowledge and experience to identify the likely classifications for specific areas for which they are responsible. Based on their determinations of which levels of sensitivity suit which sites, forest managers should follow the appropriate sensitivity level guidelines in this document to the best of their abilities.

Many of these guidelines are already being implemented by forest managers, and it is anticipated that this informal implementation process will continue until the proposed classification process is fully established.

Many of these guidelines are already being implemented by forest managers.





After harvesting is completed, landings can be seeded to become attractive openings. *Photos courtesy of Potlatch Corporation (left) and Minnesota Department of Natural Resources (right)*

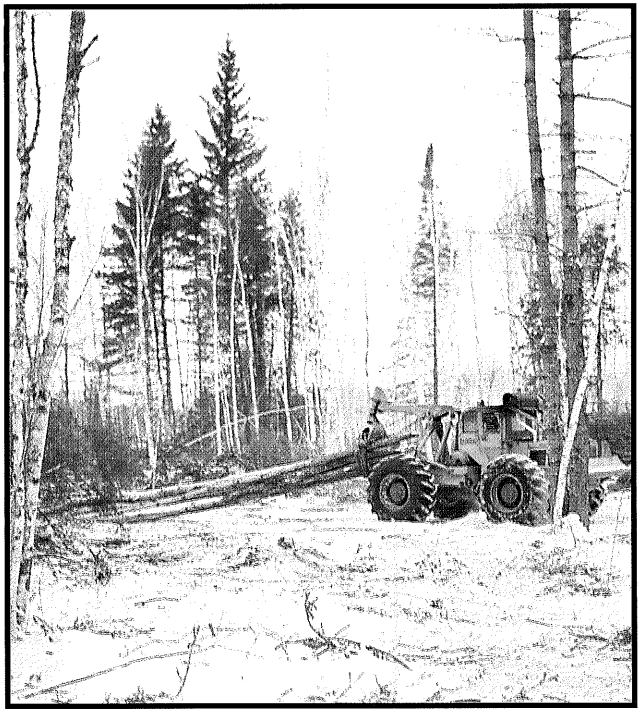
PART IV
RECOMMENDED VISUAL QUALITY BMPs FOR FOREST MANAGEMENT

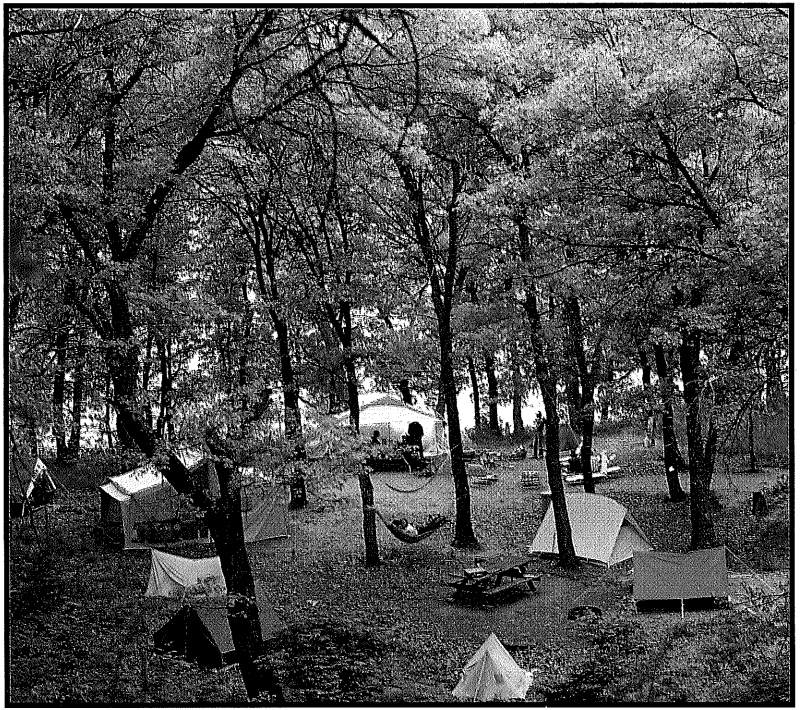
A number of forest management activities have the potential to impact the visual quality of Minnesota forestlands. This section identifies some of these activities and, for each activity, identifies the ***issue***, the ***objective*** and ***considerations*** related to the activity:

- ❒ The ***issue*** is the reason why this activity is an item of concern.
- ❒ The ***objective*** states the purpose of recommended practices.
- ❒ ***Considerations*** are factors that may affect or may be affected by implementation of the BMPs.

Discussion of each activity concludes with a set of recommended forest management practices for each of the three specific levels of sensitivity. ***These recommended practices are not presented as a complete and exhaustive list of all possible management measures.*** They are instead presented as guidelines and a general direction for efforts undertaken in the field to mitigate the identified visual impact.

These recommended practices are presented as guidelines and a general direction for efforts undertaken in the field to mitigate the identified visual impact.





Winter harvesting is one example of timing forest management activities to avoid periods of peak recreational use. *Photos courtesy of Minnesota Timber Producers Association (left) and Dorian Grilley (right)*

Timing of Forest Management Activities

Issue: Timing of forest management activities and recreational uses can cause conflict.

Objective: Minimize visual and audible impacts of forest management activities on tourists and recreational users by timing such activities with lower levels of recreational use whenever possible.

Considerations:

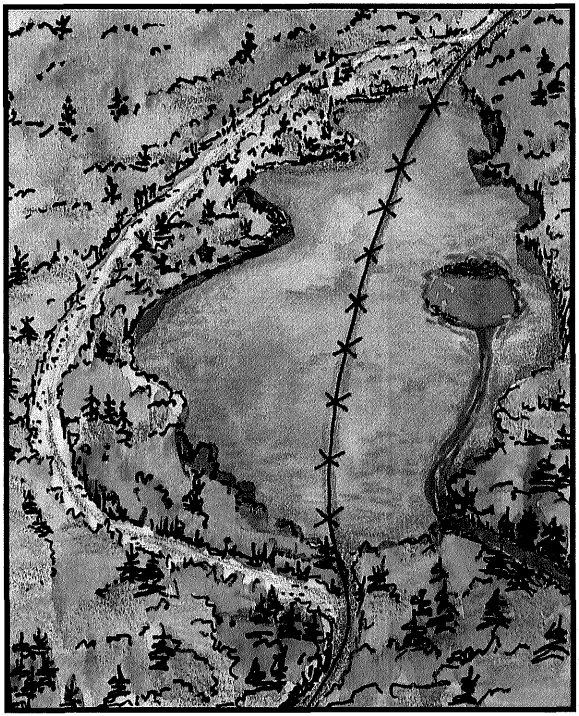
❒ The timing of forest management activities or recreational activities can be constrained by pre-existing or seasonal conditions, regulations and limitations, such as seasonal road load limits, seasonal forest access limitations, forest fire hazard conditions, and appropriate times for such activities as herbicide treatments, tree planting and road construction.

RECOMMENDED PRACTICES

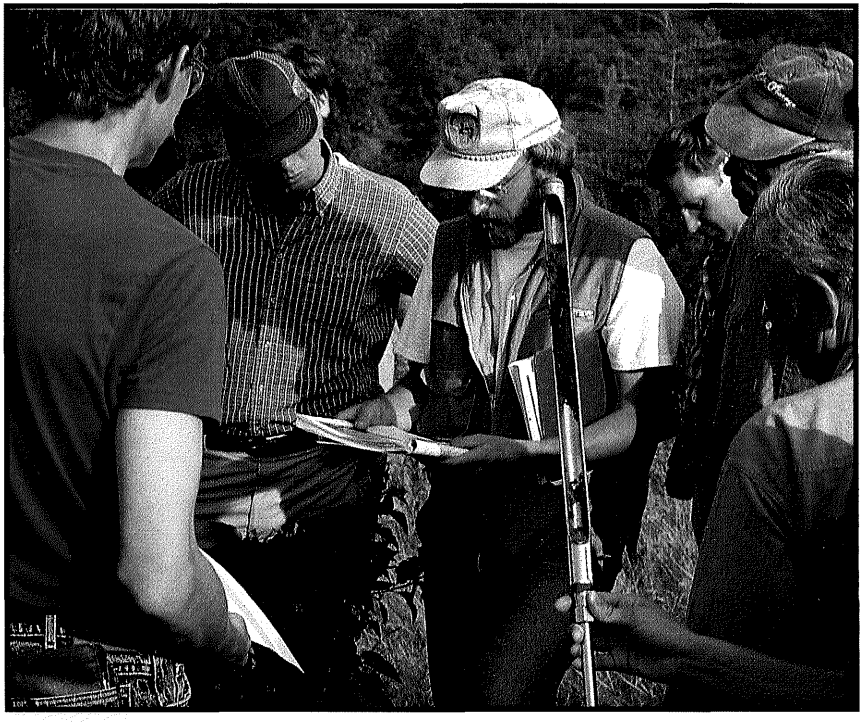
Level #1: Most Sensitive

❒ ***Avoid management operations during periods of peak recreational use*** whenever possible.

Avoid management operations during periods of peak recreational use whenever possible.



Temporarily relocate trails away from management activity areas.



Inform and educate users prior to, during and after management activities.
Photo courtesy of Minnesota Department of Natural Resources

❒ ***Reduce noise*** in early morning, late evening and other appropriate times whenever possible.

❒ ***Temporarily relocate trails*** away from management activity areas.

❒ ***Selectively restrict use*** of recreational facilities to avoid conflict with management activities.

❒ ***Inform and educate recreational users*** regarding management issues, limitations and timing prior to, during and after management activities.

Level #2: Moderately Sensitive

❒ ***Time management activity*** with consideration for public use patterns.

❒ ***Minimize direct conflict*** with forest recreational users during peak use and special event periods.

❒ ***Temporarily relocate trails,*** if necessary, away from management activity areas.

❒ ***Selectively restrict use*** of recreational facilities to avoid conflict with management activities.

Selectively restrict use of recreational facilities to avoid conflict with management activities.

Large, unbroken clear-cuts are perceived by the general public as unsightly. *Photo courtesy of Itasca County Land Department*

❒ ***Inform and educate recreational users*** regarding management issues, limitations and timing prior to, during and after management activities.

Level #3: Less Sensitive

❒ ***Limit time constraints*** to special events or site-specific concerns.

Harvesting: Apparent Size of Harvest Area

Issue: Harvest areas tend to be more objectionable as their ***apparent*** visual size increases. Large, unbroken clear-cuts are perceived by the general public as unsightly.

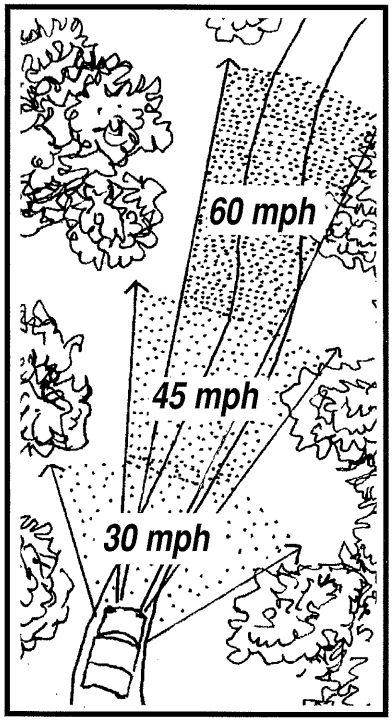
Objective: Minimize visibility of harvest areas by limiting ***apparent*** size of harvest.

Considerations:

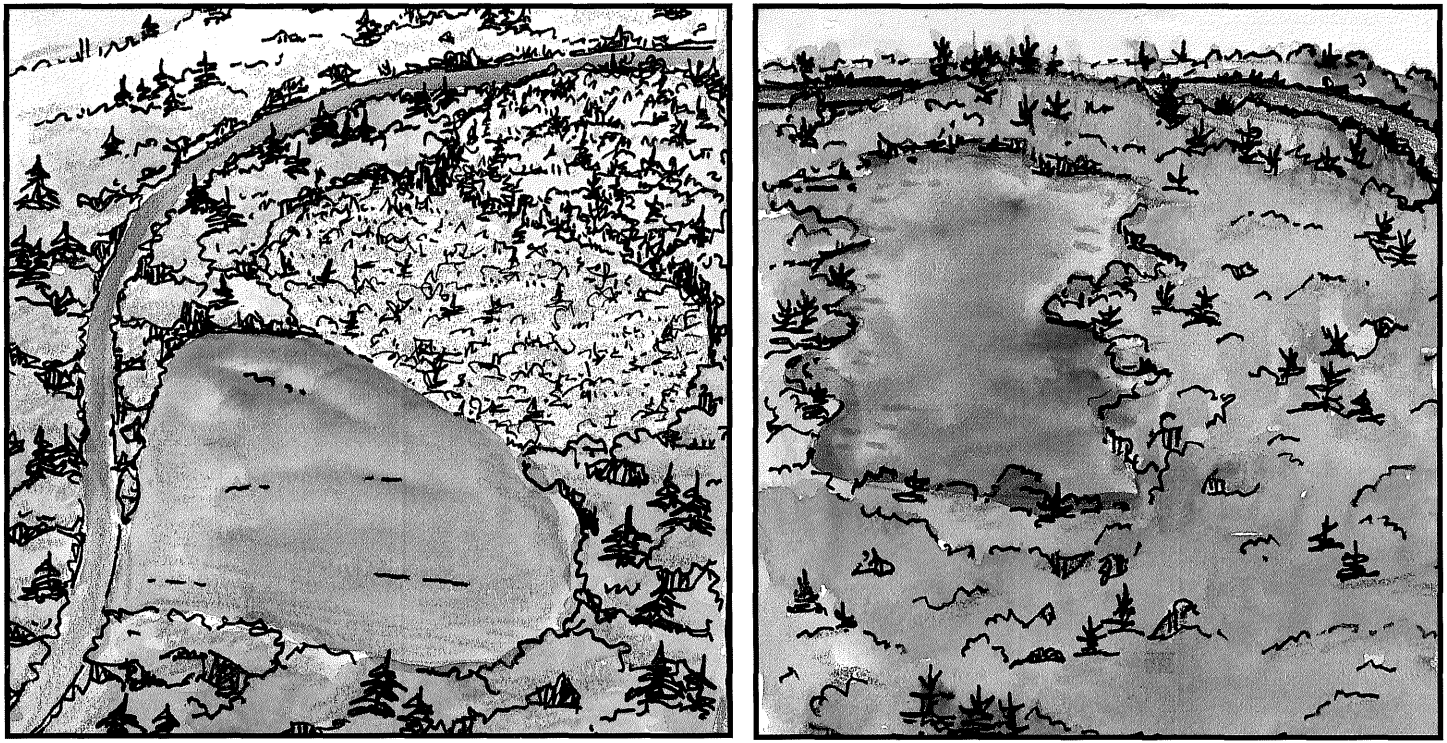
❒ Travel speed affects apparent field of vision and observation time, which impact users' level of concern.

❒ Type of harvest (clear-cut vs. partial cut, for example) affects user perception of apparent size.

❒ Stand condition and health should be considered along with visual impacts.



Travel speed affects apparent field of vision and observation time.



Multiple-stage cutting *(left)* and using natural terrain to screen clear-cuts *(right)* are two practices that reduce the apparent size of a harvest area.

❒ Desired future condition of a particular stand should be considered along with visual impacts.

❒ Proximity to recreational use areas results in enhanced user concerns regarding apparent size of harvest.

RECOMMENDED PRACTICES

Level #1: Most Sensitive

❒ ***Consider multiple-stage cuts*** or other silvicultural methods such as shelterwood and selective harvesting.

❒ ***Leave patches of trees*** to break up the cut area and reduce ***apparent*** size.

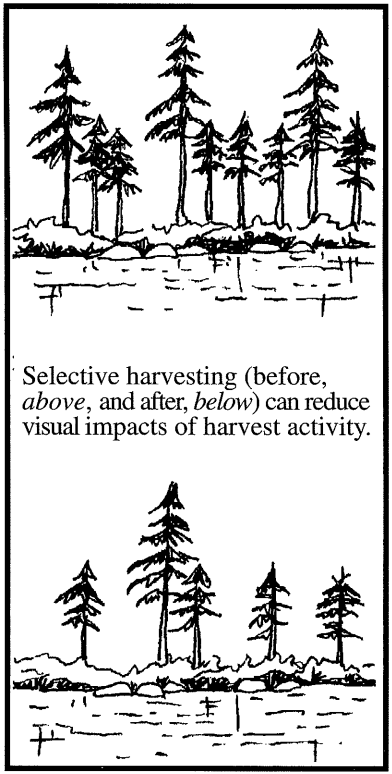
❒ ***Create narrow openings*** into harvest area to limit view from public roads, lakes and rivers, or recreation areas.

❒ ***Utilize natural terrain*** to minimize ***apparent*** size.

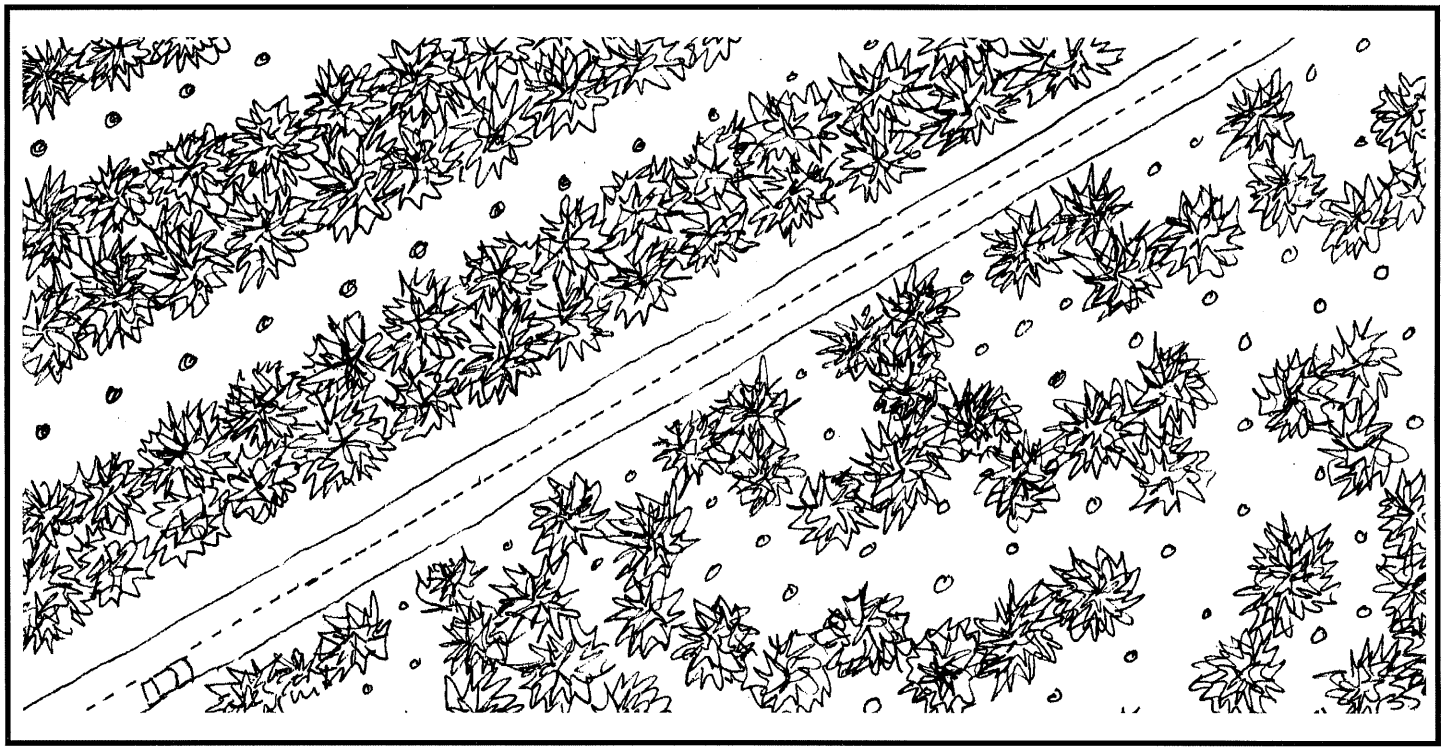
❒ ***Shape clear-cuts*** to look more like natural openings where ownership patterns allow.

❒ ***Adjust contiguous linear feet of harvest frontage*** along travel routes relative to travel speed.

❒ ***Use preceding activities to limit apparent size*** to 5 acres or less. (Actual size of harvest may be larger.)



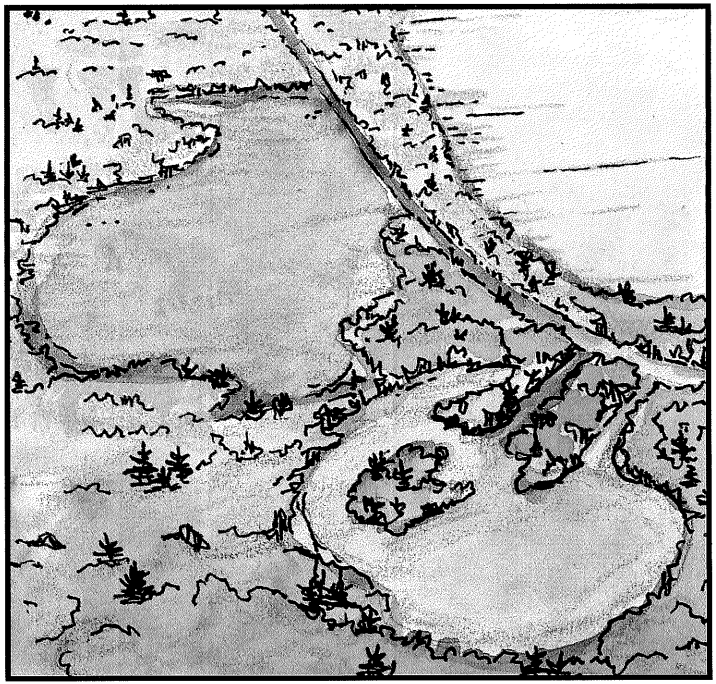
Selective harvesting (before, *above*, and after, *below*) can reduce visual impacts of harvest activity.



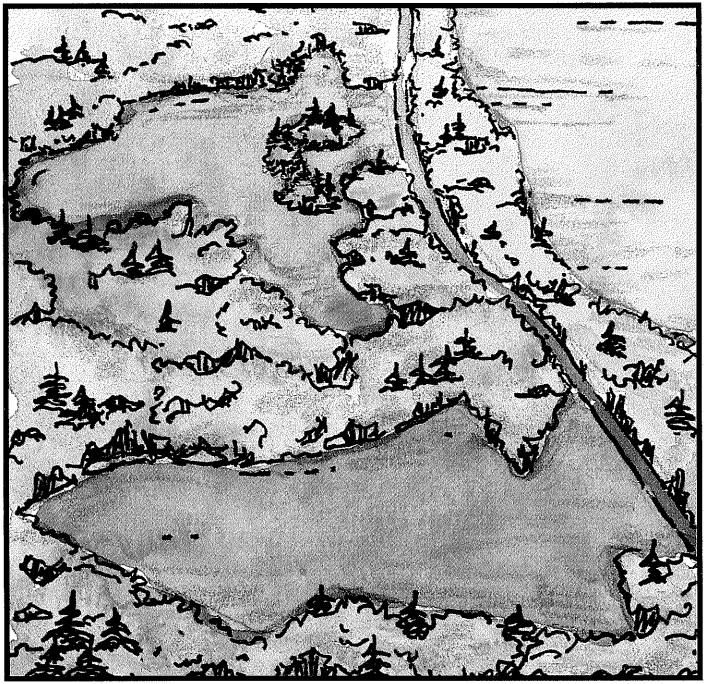
Row thinning *(upper left)* and selective harvesting *(lower right)* can minimize the visual impact of harvest activity on adjacent travel routes.

Leaving a band of trees between a clear-cut and a roadway or waterway eliminates the visual impact of harvest activity on the recreational user.

Besides being invisible from Lake Superior, this well-designed clear-cut *(center of picture)* is barely visible from a nearby hiking trail. *Photo courtesy of Superior National Forest*

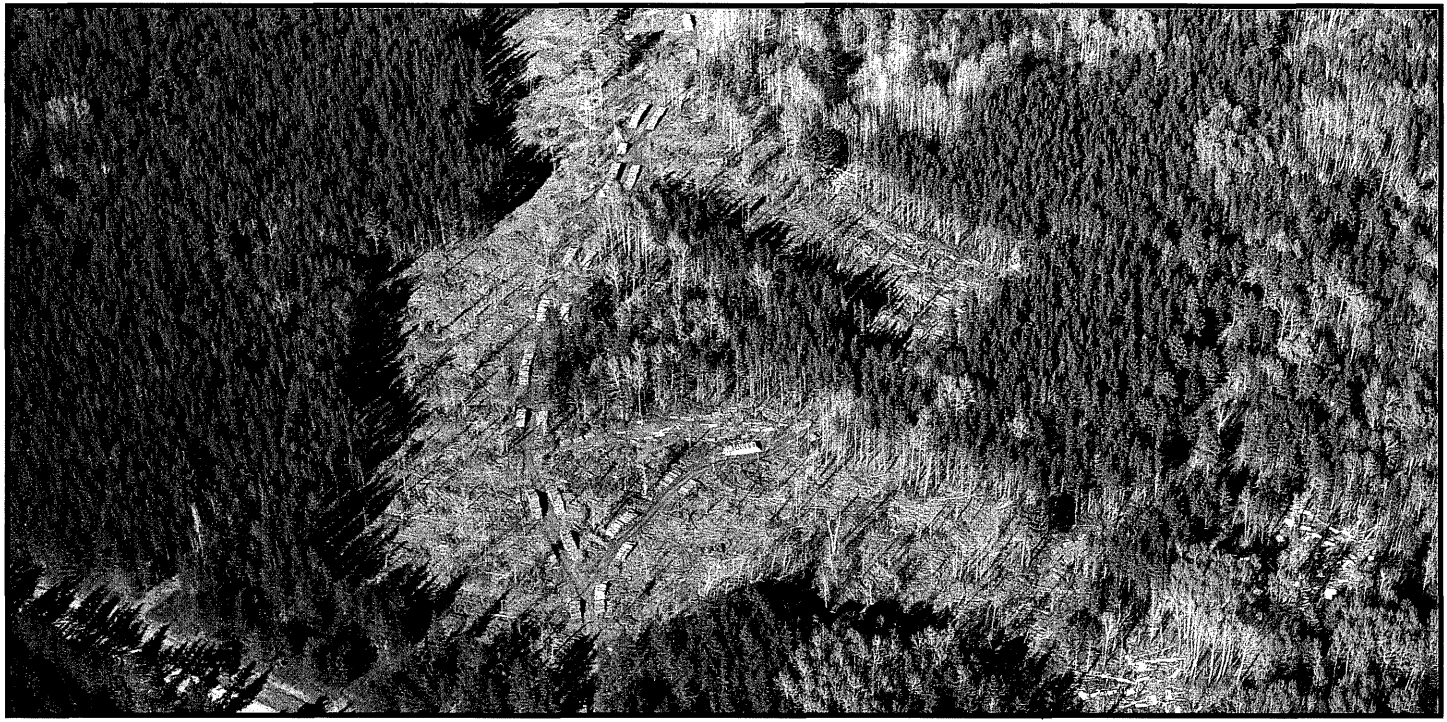


The impact of a highly visible harvest area *(upper left)* is reduced by the use of narrow openings into the harvest area *(lower right)*. A vegetative island further blocks the view into the harvest area.

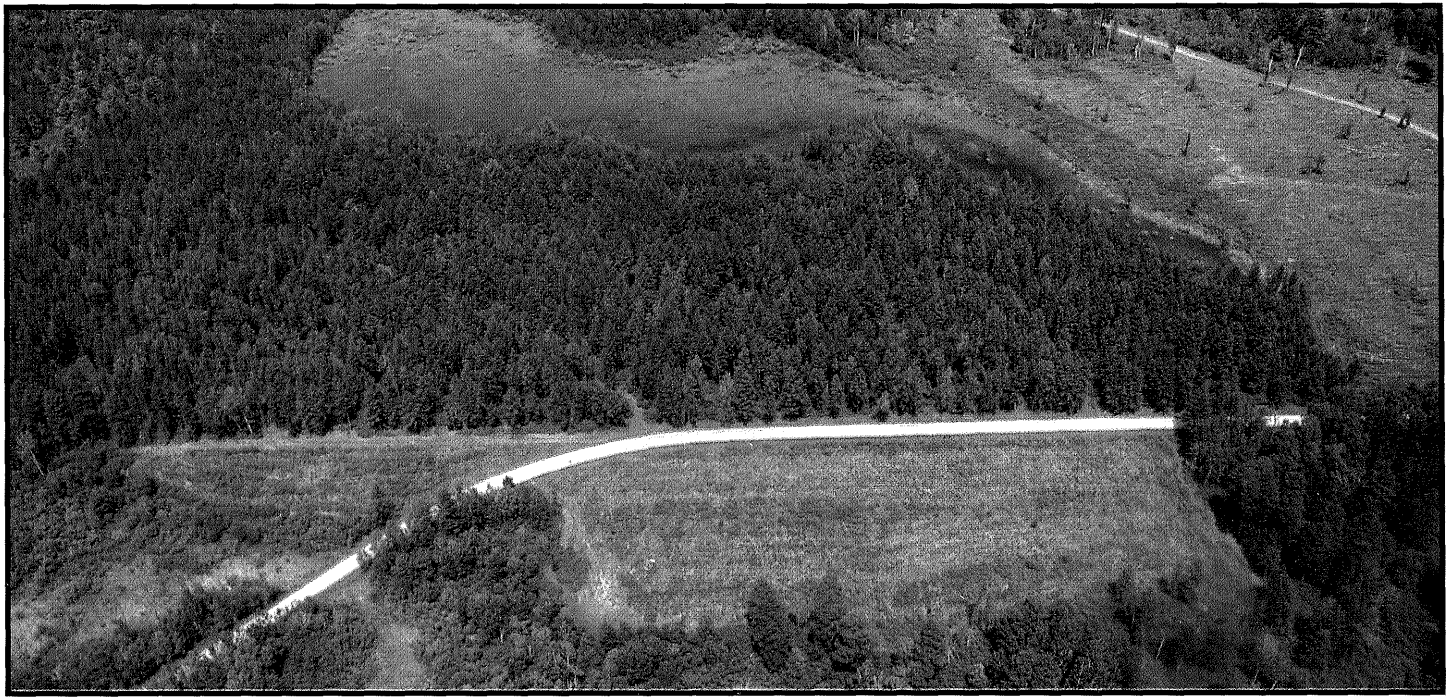


Shaping clear-cuts to resemble natural openings *(above)* is more visually pleasing than geometric clear-cut areas *(below)*. The top opening also uses a vegetative island to reduce apparent size from the road.

Vegetative islands help to reduce the apparent size of this clear-cut from the main road *(far right)*. This clear-cut has also been shaped to resemble a natural opening. *Photo courtesy of Superior National Forest*



This aerial of a clear-cut area reflects several visual quality management practices, including natural shaping, large vegetative islands and a narrow opening into the area that limits visual penetration from the road *(lower left). Photo courtesy of Chippewa National Forest*



The wetland area *(top center)* represents the kind of natural shape recommended for clear-cut openings in visually sensitive areas. In contrast, the lower clear-cut is rectangular and not screened from the road at all—which, depending on the sensitivity level of the area, may or may not be a concern. *Photo courtesy of Chippewa National Forest*

Level #2: Moderately Sensitive

❒ ***Consider multiple-stage cuts*** or other silvicultural methods such as shelterwood and selective harvesting.

❒ ***Leave patches*** of small unmerchantable species in cut area.

❒ ***Create narrow openings*** into harvest area to limit view from public roads, lakes and rivers, or recreation areas.

❒ ***Utilize natural terrain*** to minimize ***apparent*** size.

❒ ***Shape clear-cuts*** to look more like natural openings where ownership patterns allow.

❒ ***Adjust contiguous linear feet of harvest frontage*** along travel routes relative to travel speed.

❒ ***Limit apparent size*** to 5-10 acres.

Level #3: Less Sensitive

❒ ***Use sound integrated resource management*** guidelines.

❒ ***Harvest acreage necessary*** to meet management goals.

❒ ***No specific size or frontage guidelines*** recommended.

Shape clear-cuts to look more like natural openings where ownership patterns allow.

Harvesting: Slash Disposal

Issue: Visible slash is unsightly and creates an impression of poor harvesting and utilization.

Objective: Minimize visual impact of slash.

Considerations:

- ❒ Slash is unavoidable when timber harvesting.
- ❒ Slash treatment has a definite cost.
- ❒ Slash near wetlands, lakes and streams is subject to special regulation.
- ❒ Slash provides soil nutrients.

RECOMMENDED PRACTICES

Level #1: Most Sensitive

- ❒ ***Encourage full utilization*** of all species in harvest area.
- ❒ ***Eliminate or minimize slash*** within the first 50 feet from travel routes or recreation areas.

Eliminate or minimize slash within the first 50 feet from travel routes or recreation areas.

Visible slash is unsightly. For Level 1 routes, the recommended practice is to eliminate or minimize slash within the first 50 feet from travel routes or recreation areas. *Photo courtesy of Superior National Forest*

This chain flail, used generally to knock limbs off of trees, can also be used to reduce slash to a visually acceptable height. *Photo courtesy of Minnesota Timber Producers Association*

A recommended practice for Level 1 routes is to avoid slash piles or windrows visible from travel routes or recreation areas. If this were a Level 1 area, the recommendation would be to mitigate the visual effect by keeping windrows out of sight or burning them in a timely manner. *Photo courtesy of Minnesota Department of Natural Resources*

❒ ***Limit slash not screened from view*** beyond 50 feet from travel routes or recreation areas to a maximum height of 2 feet.

❒ ***Avoid slash piles or windrows*** visible from travel routes and recreation areas.

Level #2: Moderately Sensitive

❒ ***Encourage maximum utilization*** of all felled trees in harvest area.

❒ ***Minimize visual exposure*** to slash piles and windrows.

❒ ***Limit slash not screened from view to a maximum height*** of 2 feet.

Avoid slash piles or windrows visible from travel routes and recreation areas.

Level #3: Less Sensitive

❒ ***Avoid obtrusive piles*** in the foreground of visible areas.

❒ ***Use appropriate slash disposal*** to meet silvicultural goals.

❒ ***Limit slash not screened from view to a reasonable height*** to avoid a negative visual effect.

Harvesting: Landings

Issue: Pulpwood piles, machinery, disturbed soil and other debris on landings can be very unsightly during and shortly after logging operations.

Objective: Minimize the impact of landing operations on recreational viewers and users.

Considerations:

❒ Species, products developed, size of sale and timber sale design affect size and number of landings.

❒ Topography can limit placement—and number—of landings.

❒ Proximity of harvest to travel routes or use areas can affect placement of landings.

❒ Proposed future use of landing area (as a parking area along a recreational trail or as a wildlife opening, for example) can affect size and placement of landing.

❒ Landing treatment practices may result in additional cost, no change in cost, or a savings in cost.

Minimize the impact of landing operations on recreational viewers and users.

RECOMMENDED PRACTICES

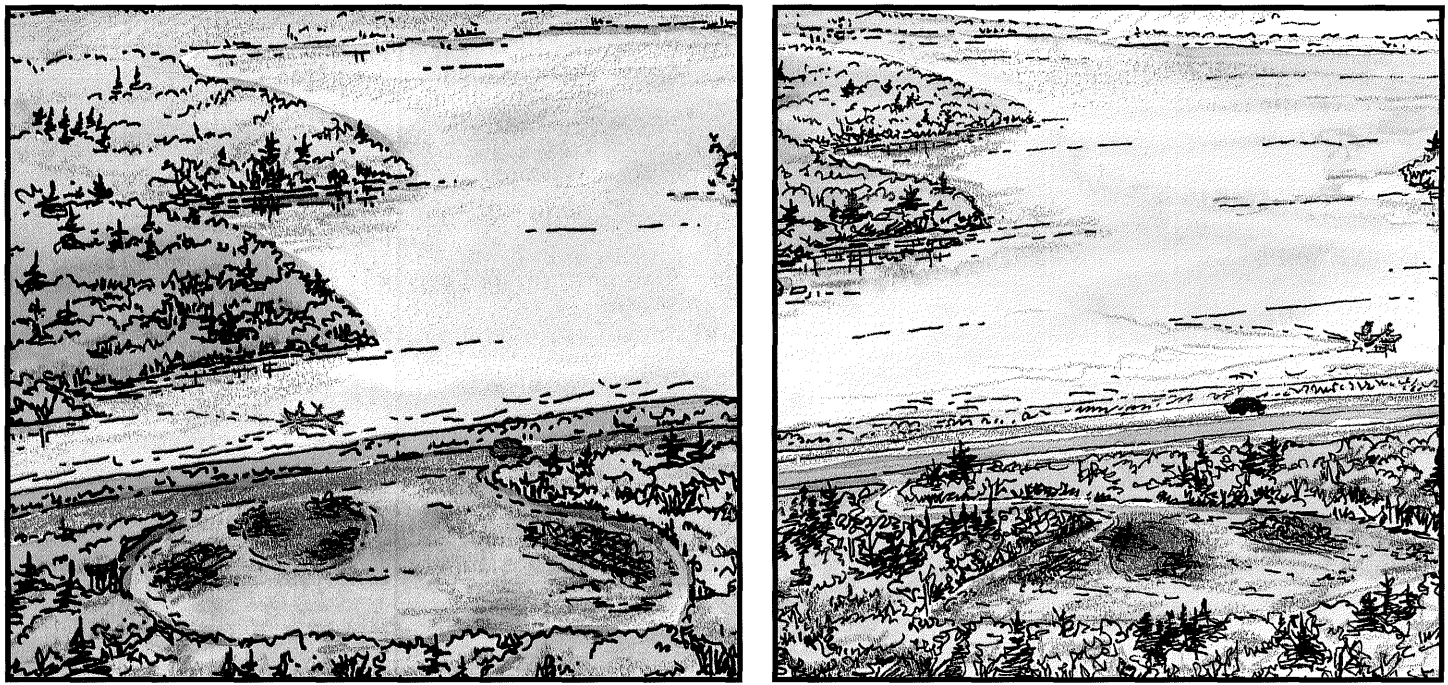
Level #1: Most Sensitive

- ❒ ***Avoid landings within view of travel routes*** or recreation areas.
- ❒ ***Plan landings*** to access future sales.
- ❒ ***Remove all products promptly*** when development of visible landings is necessary.
- ❒ ***Dispose of grubbed stumps and trees*** so as not to be visible.
- ❒ ***Treat any slash*** at landings as soon as possible.
- ❒ ***Seed, plant and regenerate*** landings promptly.
- ❒ ***Keep number of landings*** to a minimum.
- ❒ ***Remove all trash from landings*** upon completion of harvesting.

Avoid landings within view of travel routes or recreation areas.

Level #2: Moderately Sensitive

- ❒ ***Avoid landings within view of travel routes*** or recreation areas.
- ❒ ***Screen landings from view*** as long as possible during logging.



A recommended practice is to avoid placing landings within view of travel routes or recreation areas. The landing and slash piles in the left example are in full view of travelers and recreational users along the adjacent travel route and waterway. The landing and slash piles in the right example are hidden from the travel route and waterway because of the dogleg access road.

❒ ***Plan landings*** to access future sales.

❒ ***Remove all products promptly*** when development of visible landings is necessary.

❒ ***Dispose of grubbed stumps and trees*** so as not to be visible.

❒ ***Treat any slash*** at landings as soon as possible.

❒ ***Seed, plant and regenerate*** landings promptly.

❒ ***Keep number of landings*** to a minimum.

❒ ***Remove all trash from landings*** upon completion of harvesting.

Level #3: Less Sensitive

❒ ***Avoid landings within a travel route*** right-of-way.

❒ ***Locate landings for best economy*** and reuse on subsequent sales.

❒ ***Consider locating landing outside of maintained road*** right-of-way whenever possible.

❒ ***Remove all trash from landings*** upon completion of harvesting.

Remove all products promptly when development of visible landings is necessary.

The visual impact of snags and broken trees can give a harvested area an unsightly appearance. If providing wildlife habitat is a primary concern, however, snags may be considered acceptable—even desirable. *Photo courtesy of Minnesota Department of Natural Resources*

Harvesting: Snags

Issue: The visual impact of snags and broken trees can give a harvested area an unsightly appearance.

Objective: Minimize visual contrast created by snags and broken or leaning trees.

Considerations:

❒ Snags represent a potential safety hazard for logging operations.

❒ Snags can limit effective growth of future plantations by occupying space that could otherwise be used by healthy trees.

❒ Snags may increase the potential risk of lightning fires.

❒ Snags enhance the quality of wildlife habitats, providing nesting, denning, feeding and roosting sites, as well as escape areas.

❒ Snags may increase insect and disease problems for regeneration of a new stand.

Snags enhance the quality of wildlife habitat. *Photo courtesy of Itasca County Land Department*

RECOMMENDED PRACTICES

Level #1: Most Sensitive

❒ ***Avoid leaving snags*** in the foreground.

❒ ***Hide scattered snags*** with vegetative islands or locate snags around the edge of an opening to allow for camouflage by background trees of similar color and texture.

Level #2: Moderately Sensitive

❒ ***Avoid leaving snags*** in the foreground.

❒ ***Hide scattered snags*** with vegetative islands or locate snags around the edge of an opening to allow for camouflage by background trees of similar color and texture.

Level #3: Less Sensitive

❒ ***Follow standards and guidelines*** that best achieve integrated management objectives for the area.

Hide scattered snags with vegetative islands or locate snags around the edge of an opening to allow for camouflage by background trees.

Forest Management Activities: Forest Access Road and Trail Building

Issue: Poor design, construction and maintenance of forest access roads (non-public roads as per Minnesota State Statute 89.001 Subd. 14) can result in visual impacts and the concentration of forest management activities.

Objective: Reduce visual impacts associated with the design and use of forest access roads.

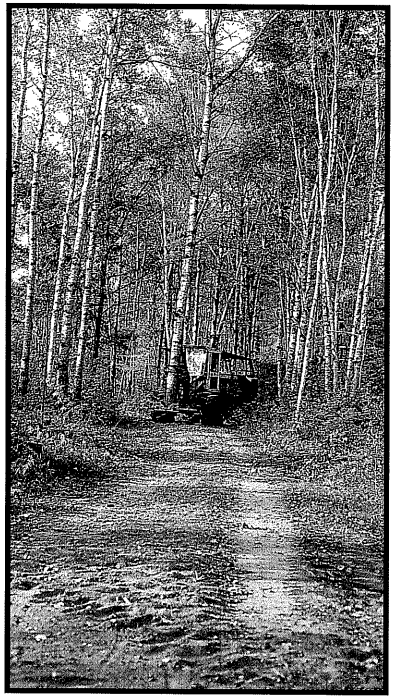
Considerations:

❒ Frequency of access, amount of anticipated traffic, seasons during which access is required, and safety concerns affect the number, size and design of forest access roads.

❒ Distribution of necessary management activities affects the number and location of access roads.

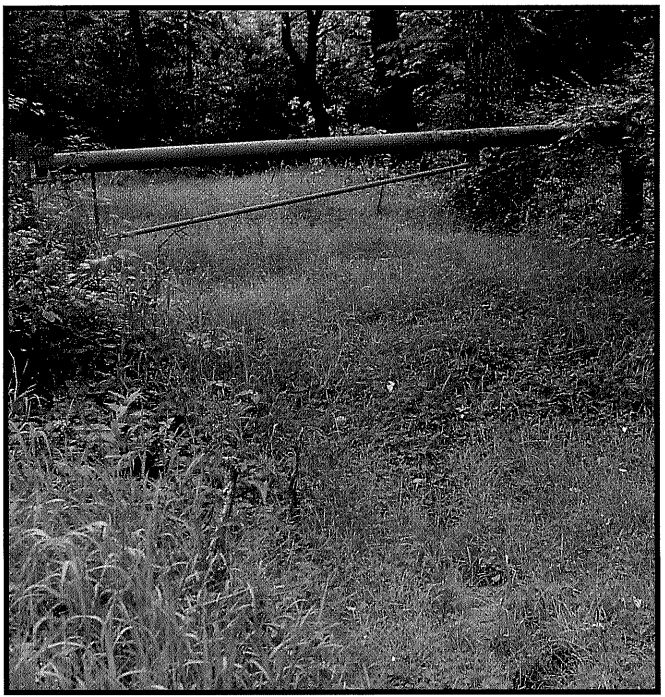
❒ Noise from traffic, especially large trucks, buses and heavy equipment operating on access roads, can affect recreational users.

❒ Building forest access roads to accommodate visual quality concerns—or using existing roads that require traveling greater distances—may involve increased costs.



Forest access roads can provide walking trails for hunters and hikers. *Photo courtesy of Potlatch Corporation*

Reduce visual penetration into clear-cuts or landing areas by designing curves in the road alignment. *Photo courtesy of Minnesota Department of Natural Resources*



Seeding forest access roads after completion of use eliminates negative visual impacts. *Photo courtesy of Minnesota Department of Natural Resources*

❒ The limited road construction season generally coincides with the tourist season.

❒ Traffic during wet periods can increase maintenance needs and create unsightly ruts and mudholes.

RECOMMENDED PRACTICES

Level #1: Most Sensitive

❒ ***Reduce visual penetration*** with appropriate curves in the road alignment.

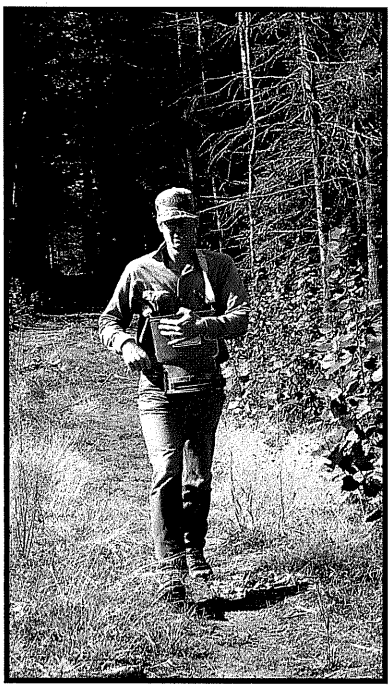
❒ ***Utilize merchantable timber*** within road clearings.

❒ ***Burn, screen or bury road-clearing debris,*** such as stumps, rocks and boulders, so that it is not visible from travel routes or recreation areas.

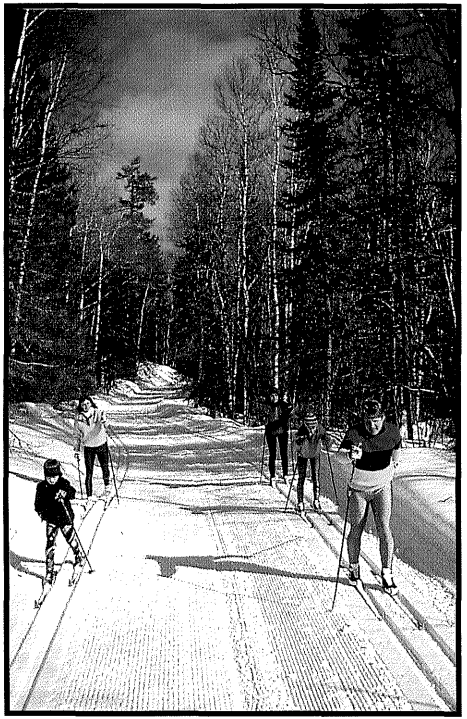
❒ ***Minimize the number of roads*** approaching travel routes or recreation areas.

❒ ***Shape and seed ditches*** and exposed areas to avoid visual impacts of erosion.

❒ ***Avoid tracking mud*** onto highways by using appropriate road surface material.



Seeding trails enhances the effect of natural regrowth. *Photo courtesy of Itasca County Land Department*



A logging road *(left)* often provides a future recreational trail *(right)*. *Photos courtesy of Potlatch Corporation (left) and Minnesota Department of Tourism (right)*

❒ ***Locate roads and trails*** to minimize visibility from nearby vantage points, such as scenic overlooks, lakes and streams.

❒ ***Construct the minimum number and type of roads or trails*** necessary to meet management objectives and anticipated traffic loads.

❒ ***Control access*** during times when the road or trail is especially susceptible to damage.

❒ ***Maintain*** roads and trails regularly.

❒ ***Close temporary roads or trails*** upon completion of use.

❒ ***Provide appropriate access control*** to minimize unauthorized traffic during use and especially after completion of activity.

Control access during times when the road or trail is especially susceptible to damage.

Level #2: Moderately Sensitive

❒ ***Reduce visual penetration*** with appropriate curves in the road alignment.

❒ ***Utilize merchantable timber*** within road clearings.

❒ ***Move cleared debris*** outside of the travel route right-of-way so that it is minimally apparent.

❒ ***Avoid tracking mud*** onto highways by using appropriate road surface material.

Providing appropriate access control eliminates motorized vehicle use while encouraging hunters and hikers. A "Walking Trail" sign on a gate has a more positive visual impact than a "No Trespassing" or "Keep Out" sign. *Photos courtesy of Itasca County Land Department (left) and Chippewa National Forest (right)*

❒ ***Locate roads and trails*** to minimize visibility from nearby vantage points, such as scenic overlooks, lakes and streams.

❒ ***Construct the minimum number and type of roads or trails*** necessary to meet management objectives and anticipated traffic loads.

❒ ***Control access*** during times when the road or trail is especially susceptible to damage.

❒ ***Maintain*** roads and trails regularly.

❒ ***Close temporary roads or trails*** upon completion of use.

❒ ***Provide appropriate access control*** to minimize unauthorized traffic during use and especially after completion of activity.

Close temporary roads or trails upon completion of use.

Level #3: Less Sensitive

❒ ***Consider visual quality*** to the extent possible.

❒ ***Encourage utilization*** of all merchantable right-of-way timber.

❒ ***Avoid creating a corridor of debris.***

❒ ***Do not leave jackstrawed or overturned stumps*** in immediate foreground.

Site preparation methods, such as windrowing, often lengthen the amount of time an area remains unsightly. Even after three years of natural revegetation has improved the visual quality of a former harvest area, windrows still remain an unsightly part of the landscape. *Photo courtesy of Chippewa National Forest*

❒ ***Reduce height*** of dozed clearing debris during road construction.

❒ ***Construct the minimum number and type of roads or trails*** necessary to meet management objectives and anticipated traffic loads.

❒ ***Control access*** during times when the road or trail is especially susceptible to damage.

❒ ***Maintain*** roads and trails regularly.

❒ ***Close temporary roads or trails*** upon completion of use.

❒ ***Provide appropriate access control*** to minimize unauthorized traffic during use and especially after completion of activity.

Regeneration: Site Preparation

Issue: Site preparation methods, such as windrowing, often lengthen the amount of time an area remains unsightly.

Objective: Reduce the visual impact of site preparation practices and reduce the time that the effects of these practices are visible.

Reduce the visual impact of site preparation practices and reduce the time that the effects of these practices are visible.

Considerations:

❒ Site preparation methods are determined in part by the site itself: what's already growing there, soil conditions, topography, and site and soil sensitivity factors.

❒ Contour preparation methods can minimize erosion, as well as the cost of remedial action or repair.

❒ Desired species affects site preparation methods.

❒ Every site preparation method has a different cost. For any method being considered, costs (both short-term and long-term) should be balanced against effectiveness of the method in attaining visual quality objectives.

❒ Composition and condition of the original stand can impact the regeneration method chosen for a particular site.

Avoid the effect of linear straight rows and resulting visual penetration immediately alongside travel routes or recreation areas.

RECOMMENDED PRACTICES

Level #1: Most Sensitive

❒ ***Utilize land contours*** in site preparations.

❒ ***Avoid the effect of linear straight rows*** and resulting visual penetration immediately alongside travel routes or recreation areas.

❒ ***Initiate revegetation*** efforts as soon as possible.

❒ ***Avoid or screen windrows*** and slash piles.

❒ ***Use low-impact site preparation methods*** such as patch or row scarification.

❒ ***Use spot or strip treatment of herbicides*** rather than broadcast treatment applications.

Level #2: Moderately Sensitive

❒ ***Utilize land contours*** in site preparations.

❒ ***Avoid the effect of linear straight rows*** and resulting visual penetration immediately alongside travel routes or recreation areas.

❒ ***Initiate revegetation*** efforts as soon as appropriate.

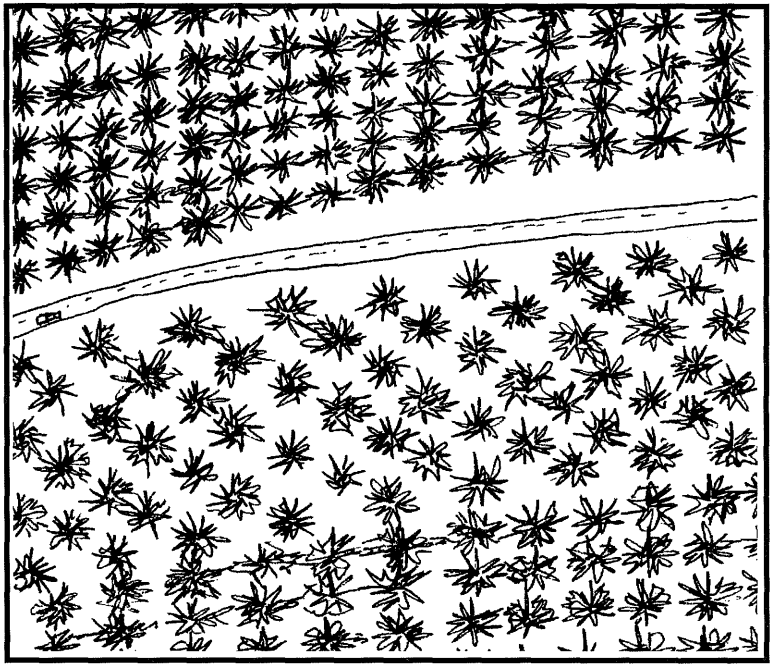
❒ ***Avoid or screen windrows*** and slash piles.

Level #3: Less Sensitive

❒ ***Plan and conduct activities*** following integrated resource management principles.

Use low-impact site preparation methods such as patch or row scarification.

Promote natural-appearing stands by avoiding planting rows perpendicular to travel routes, which can result in a negative visual impact. *Photo courtesy of Minnesota Department of Natural Resources*



To avoid the perception of unnatural straight rows *(as shown above the travel route)*, plant irregular or offset rows for the first few rows along a travel route *(as shown below the travel route)* to discourage visual penetration and increase the perception of a natural stand.

Artificial Regeneration

Issue: Artificial regeneration can result in a negative visual impact.

Objective: Promote natural-appearing stands.

Considerations:

❒ Increasing planting complexity may increase planting costs.

❒ Management methods associated with natural-appearing stands (such as mixed-species planting and randomized spacing) can have increased long-term costs.

❒ Leaving residual trees can require increased disease-control measures.

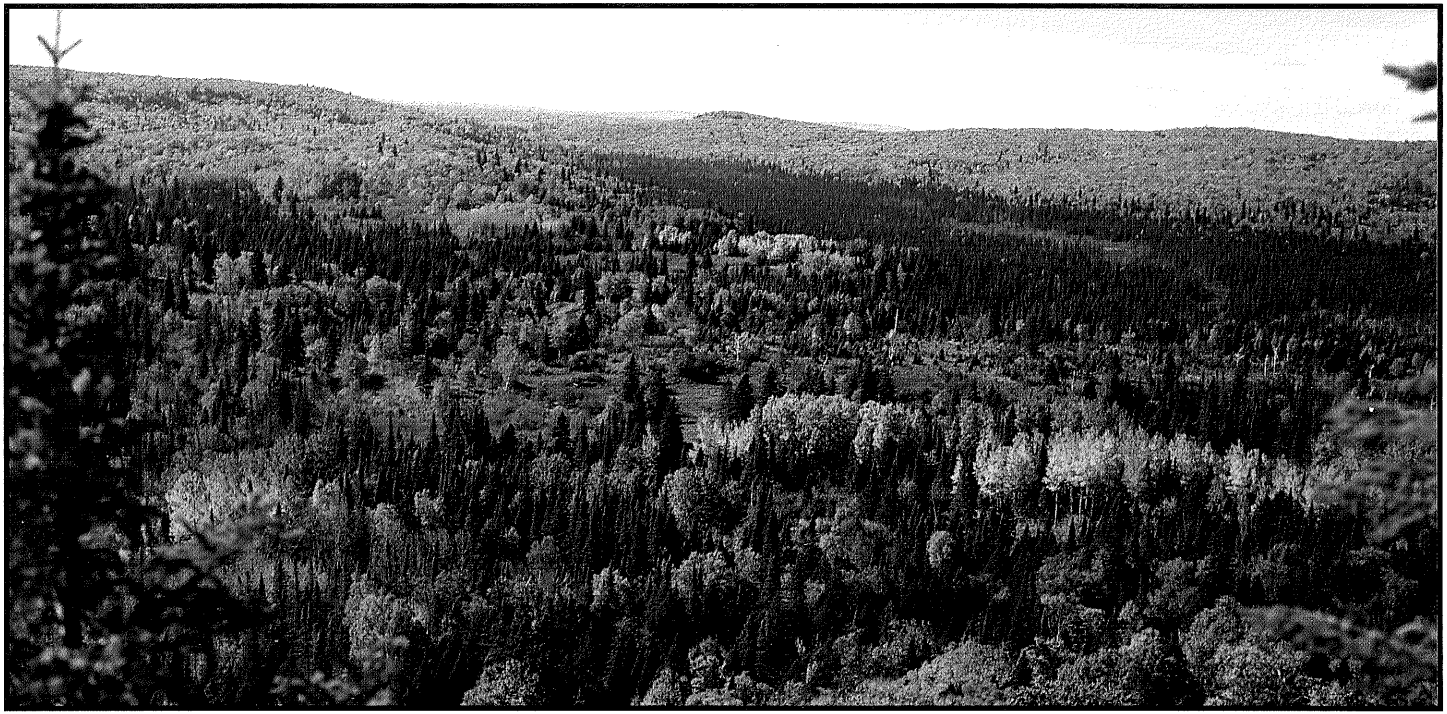
Do not plant rows perpendicular to travel routes.

RECOMMENDED PRACTICES

Level #1: Most Sensitive

❒ ***Do not plant rows perpendicular*** to travel routes or recreation areas.

❒ ***Plant irregular or offset rows*** to encourage natural-appearing stands.



Promoting a mixture of species encourages and maintains diversity—resulting in the positive visual impact of a natural-appearing landscape. *Photo courtesy of Superior National Forest*

❒ ***Use wider initial spacing*** to minimize number of re-entries to the site and to encourage establishment of other species.

❒ ***Promote a mixture of species,*** both naturally occurring and planted.

❒ ***Encourage and maintain diversity*** within the stand.

❒ ***Favor long-lived species*** where appropriate to minimize frequency of management activities.

Level #2: Moderately Sensitive

❒ ***Avoid rows perpendicular to travel routes*** or recreation areas.

❒ ***Use wider spacing*** along sensitive boundaries.

❒ ***Promote a mixture of species,*** both naturally occurring and planted.

❒ ***Use species appropriate*** for site.

Level #3: Less Sensitive

❒ ***Choose species and plantation design*** consistent with integrated resource management principles.

Promote a mixture of species, both naturally occurring and planted.

Timber stand improvement includes removing some of the trees from a stand to reduce competition for moisture, nutrients and sunlight for remaining trees (before thinning, *left,* and after thinning, *right*). *Photos courtesy of Minnesota Department of Natural Resources*

Timber Stand Improvement

Issue: While timber stand improvement (TSI) may improve the aesthetics of a route or area by promoting trees that have visually pleasing properties, some TSI activities may have visual impacts because of alterations to the stand and the accumulation of debris.

Objective: Enhance the aesthetics of visual management areas by minimizing visual impacts of TSI activities.

Considerations:

❒ TSI (including removal of brush and small, suppressed trees) can allow people to see into the stand.

❒ Timing of TSI activities should take into account disease and insect cycles that may be enhanced by the presence of slash.

❒ Restricted operating hours (to regulate noise near recreation areas) may affect the cost of TSI activities.

❒ Additional slash disposal requirements (to control disease or to enhance visual quality) may affect the cost of TSI activities.

Enhance the aesthetics of visual management areas by minimizing visual impacts of TSI activities.

RECOMMENDED PRACTICES

Level #1: Most Sensitive

❒ ***Time TSI operations*** so that they will not occur during periods of peak recreational use.

❒ ***Treat slash and debris*** from TSI operations (by lopping, removing, crushing or burning) whenever possible. Keep slash height below 2 feet. (See Slash section.)

❒ ***Reduce noise*** in early morning, late evening and other appropriate times whenever possible near residences, businesses and outdoor activity areas.

❒ ***Inform and educate recreational users*** regarding the concept and benefits of TSI prior to, during and after TSI activities.

Inform and educate recreational users regarding the concept and benefits of TSI prior to, during and after TSI activities.

Level #2: Moderately Sensitive

❒ ***Avoid TSI operations*** during periods of peak recreational use whenever possible.

❒ ***Inform and educate recreational users*** regarding the concept and benefits of TSI prior to, during and after TSI activities.

❒ ***Treat slash and debris*** as per guidelines in Slash section.

Level #3: Less Sensitive

❒ ***Use methods and applications consistent*** with integrated resource management objectives for the area.

Herbicide Use

Reduce visual impacts of treated vegetation.

Issue: Dead standing vegetation during the growing season/summer tourist season can result in a negative visual impact.

Objective: Reduce visual impacts of treated vegetation.

Considerations:

❒ The effective treatment time for most herbicides is during the active growing season, which corresponds with the summer tourist/recreational use season.

❒ Broadcast application methods may have a greater visual quality impact than band or spot treatment methods.

RECOMMENDED PRACTICES

Level #1: Most Sensitive

- ❒ ***Favor nonherbicide treatment*** methods.
- ❒ ***Leave untreated or selectively treated areas*** adjacent to travel routes and recreation areas.
- ❒ ***Favor band treatment or spot treatment*** over broadcast treatment.
- ❒ ***Favor late-season or dormant-season*** herbicides.

Level #2: Moderately Sensitive

- ❒ ***Favor band treatment or spot treatment*** over broadcast treatment, but use broadcast treatment more than in Level 1 areas.
- ❒ ***Leave untreated or selectively treated areas*** adjacent to travel routes and recreation areas.
- ❒ ***Favor late-season or dormant-season*** herbicides.

Level #3: Less Sensitive

- ❒ ***Use methods of application consistent*** with integrated resource management principles.

Leave untreated or selectively treated areas adjacent to travel routes and recreation areas.

Gravel Pits

Issue: Visual impacts and noise impacts created by gravel pits are not compatible with recreational user sensitivities.

Objective: Reduce noise and visual unsightliness related to gravel pits.

Considerations:

❒ Local sources of gravel are necessary for efficient, cost-effective road building and maintenance.

❒ Recreational use of gravel pits may cause conflicts.

RECOMMENDED PRACTICES

Level #1: Most Sensitive

❒ ***Locate borrow pits and crushing operations*** out of the visible corridor as much as possible.

❒ ***Screen pits from travel routes or recreation areas*** using existing vegetation or landscape berms.

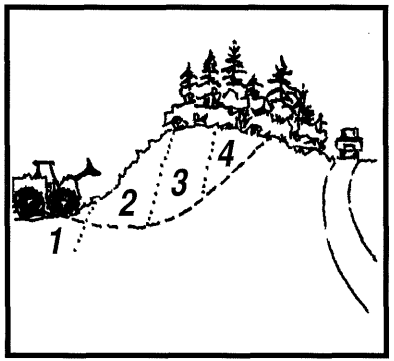
Screen pits from travel routes or recreation areas using existing vegetation or landscape berms.

Rehabilitate gravel pits upon completion of use. Rehabilitation guidelines are available in the Minnesota DNR's **Handbook for Reclaiming Sand and Gravel Pits in Minnesota.** *Photo courtesy of Superior National Forest*

❒ ***Reduce noise*** in early morning, late evening and other appropriate times whenever possible.

❒ ***Develop gravel or borrow pits from the back to the front*** of pits (moving toward the predominant viewer or vantage point).

❒ ***Rehabilitate pits*** upon completion of use as per guidelines in the Minnesota Department of Natural Resources *Handbook for Reclaiming Sand and Gravel Pits in Minnesota.*



Develop gravel pits from back to front, moving toward predominant viewer or vantage point. In this illustration, Stage 1 has been completed, Stage 2 is in process, and Stages 3 and 4 will follow. Leaving the area adjacent to the road beyond Stage 4 untouched could result in no negative visual impact on the travel route.

Level #2: Moderately Sensitive

❒ ***Locate borrow pits and crushing operations*** out of the visible corridor to the extent possible.

❒ ***Screen pits from travel routes or recreation areas*** using existing vegetation or landscape berms.

❒ ***Reduce noise*** in early morning, late evening and other appropriate times whenever possible.

❒ ***Develop gravel or borrow pits from back to front*** of pits (moving toward the predominant viewer or vantage point).

❒ ***Rehabilitate pits*** upon completion of use as per guidelines in the Minnesota Department of Natural Resources *Handbook for Reclaiming Sand and Gravel Pits ion Minnesota.*

Level #3: Less Sensitive

❒ ***Use methods and applications consistent*** with integrated resource management principles.

❒ ***Rehabilitate pits*** upon completion of use as per guidelines in the Minnesota Department of Natural Resources *Handbook for Reclaiming Sand and Gravel Pits in Minnesota.*

For Level 3 areas, use methods and applications consistent with integrated resources management principles.

PART V
TRAINING, IMPLEMENTATION AND MONITORING

The next action step required is implementation of these practices. This effort will be accomplished in part through an information/education initiative that will include training and information provided for forest managers, loggers, forest landowners, the tourism industry and the general public.

The effectiveness of these guidelines will depend on the individual loggers, forest managers and landowners who read this document and incorporate these practices into their overall approaches to management. Where appropriate, these guidelines should be considered for incorporation into contracts and planning documents.

The success of implementation will also depend on the effectiveness of designated committees in each county in classifying sensitivity levels and communicating that information.

A statewide monitoring and evaluation process will be an important aspect of this entire program. Monitoring teams, with members representing diverse backgrounds, perspectives and expertise, will do much to provide objective reviews of the effectiveness of these practices, as well as suggestions for improvement.

The effectiveness of these guidelines will depend on the individual loggers, forest managers and landowners who incorporate these practices into their overall approaches to management.

The effectiveness of these guidelines will depend on the commitment of individual loggers, forest managers and landowners who read this document and incorporate these practices into their management approaches. *Photo courtesy of Minnesota Department of Natural Resources*

Implementation depends on many factors:

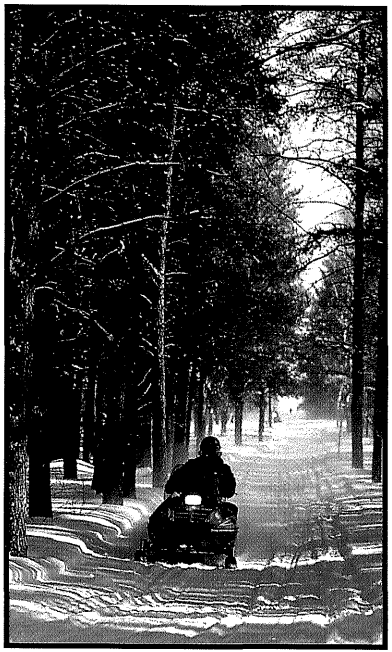
- ❒ Education
- ❒ Training
- ❒ The commitment of local loggers, forest managers and forest landowners
- ❒ Contract specifications
- ❒ The effectiveness of local designation processes
- ❒ An effective monitoring and evaluation program

The benefits of such a cooperative effort include:

❒ The enhanced visual quality of state forestlands for recreational users, resulting in a healthy tourism economy.

❒ The consistent incorporation of visual quality BMPs into resource management plans and approaches.

❒ The opportunity to successfully adopt visual quality guidelines voluntarily, which will be much more economical than the costly process of government regulation.



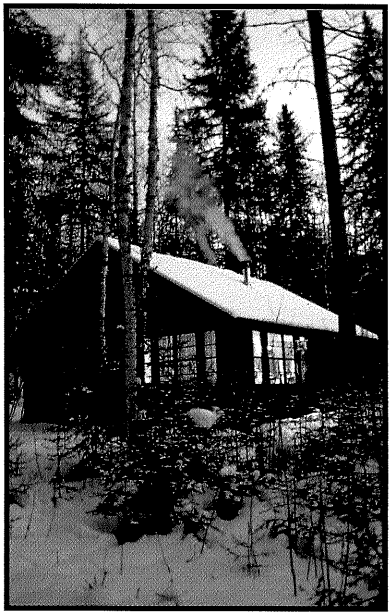
The enhanced visual quality of state forestlands for recreational users results in a healthy tourism economy. *Photo courtesy of Minnesota Department of Tourism*

Until classifications for specific routes and areas are determined, forest managers will continue to depend on their knowledge and experience to identify the likely classifications for specific areas for which they are responsible. *Photo courtesy of Dorian Grilley*

Until the Classification Process Is Under Way...

A consistent statewide process to assist designated committees in each county in determining classification levels will be established. Until then, and until classifications for specific routes and areas are determined, forest managers will continue to depend on their knowledge and experience to identify the likely classifications for specific areas for which they are responsible. Based on their determinations of which levels of sensitivity suit which sites, forest managers should follow the sensitivity level guidelines in this document to the best of their abilities.

Many of these guidelines are already being implemented by forest managers, and it is anticipated that this informal implementation process will continue until the proposed classification process is fully established.



Many of these guidelines are already being implemented by forest managers who recognize the need to balance the activities of the tourism and timber industries. *Photo courtesy of Minnesota Department of Tourism*

Minnesotans are concerned about the aesthetic quality of their forest areas, which are a great source of pride for our citizens. *Photo courtesy of Minnesota Department of Natural Resources*

GLOSSARY

Access road: A temporary or permanent access route for over-the-road vehicles into forestland.

Actual size: The real or existing extent or dimensions of an object or area.

Apparent size: The visible or evident dimensions of an object or area.

Alignment: The horizontal route or direction of an access road.

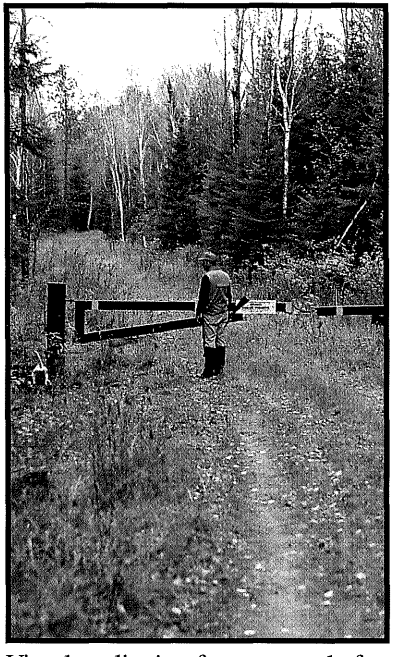
Best management practices (BMPs): A practice or combination of practices determined to be the most effective and practicable (including technological, economic and institutional considerations) means of preventing or reducing negative visual impacts of silvicultural activities.

Borrow pit: The area from which soil is removed to build up a road bed, sometimes directly adjacent and parallel to a road.

Clear-cutting: A silvicultural harvest practice whereby most or all trees within a given area are cut to promote regeneration.

Designated trail: A trail defined by Minnesota State Statute 85.015.

Harvesting: The felling, limbing, skidding, bucking, loading and transportation of forest products, roundwood or logs.



Visual quality is a factor not only for those in motorized vehicles, but also for those who travel on foot. *Photo courtesy of Itasca County Land Department*

Integrated resource management: Incorporating various disciplines to balance competing demands on a natural system to maintain or enhance its health, diversity, and cultural and aesthetic value.

Landing: A place where trees and logs are gathered in or near a harvest site for further processing and transport.

Lopping: Cutting off branches, tops and small trees after felling, into lengths such that the resultant slash will lie close to the ground.

Plantation: A stand of trees that has been planted or direct seeded.

Regeneration: The renewal of a stand of trees by either natural or artificial means.

Revegetation: The re-establishment of vegetation on bare soil by natural or artificial means.

Road: A publicly constructed and maintained state, county or township right-of-way for motorized vehicles.

Scarification: Loosening topsoil, or breaking up the forest floor, in preparation for regeneration by planting, direct seeding or natural seedfall.

Silviculture: The art and science of managing a forest.

Site preparation: Removal of unwanted vegetation and other material, followed by cultivation as preparation for the planting or seeding of trees. Site preparation may include removal of slash and other debris, removal or control of competing vegetation, or exposure of bare soil.

Advance planning is recommended as a proactive approach to visual resource management. *Photo courtesy of Potlatch Corporation*

Slash: The residue left on the ground after felling, lopping, storm, fire, girdling or poisoning. It includes nonmerchantable portions of trees, such as stumps, broken branches, dead trees and other debris left on the ground.

Snag: A standing tree generally left for wildlife management purposes.

Spot treatment: Directing a specific treatment to a limited area, as in applying a herbicide to a small clump of vegetation instead of an entire site, or scarifying patches instead of an entire site.

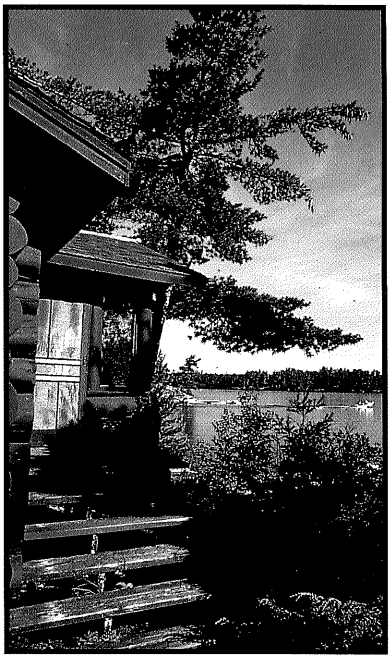
Stand: A community, particularly of trees possessing sufficient uniformity relating to composition, constitution, age, spatial arrangement or condition, that is distinguishable from adjacent communities. Such a "distinguishable community" is considered a silvicultural or management entity.

Stump: The woody base of a tree left in the ground after felling. Generally not more than 12 inches in height.

Timber stand improvement (TSI): Silvicultural activities that improve the composition, constitution, condition and increment of a timber stand.

Visual quality: A subjective measure of the impact that viewing an object, landscape or activity has on a person's perception of attractiveness.

Windrow: Slash, residue and debris raked together into piled rows.



Level 1 classifications may include recreational lakes and rivers that provide a high level of scenic quality. *Photo courtesy of Minnesota Department of Tourism*