



Forest Service
 Eastern Region
 Superior National Forest



Forest Service
 Northeast Area State and
 Private Forestry

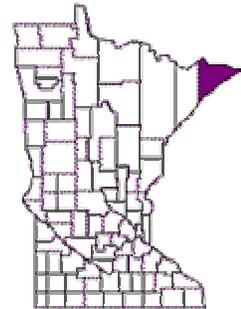


Minnesota Department of
 Agriculture
 Agronomy and Plant
 Protection Division
 Invasive Species Unit

2006 Gypsy Moth Slow-the-Spread Project

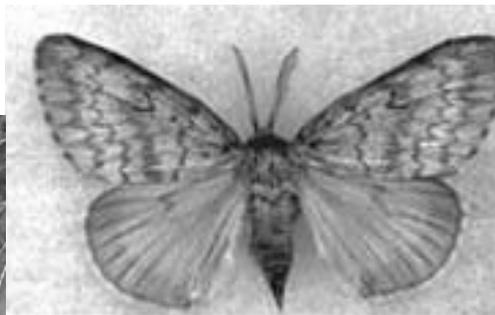
Public Involvement Package

Cook County Minnesota



February 2006

Male gypsy moth



Monitoring the gypsy moth
 population by trapping



Gypsy moth caterpillars can defoliate
 trees.



Gypsy moth caterpillars
 can be a nuisance.

ABBREVIATIONS

Btk	<i>Bacillus thuringiensis</i> spp. <i>kurstaki</i>
BWCAW	Boundary Waters Canoe Area Wilderness
CFR	Code of Federal Regulations
CWPP	Community Wildfire Protection Plan
DEIS	draft environmental impact statement
DNR	Department of Natural Resources (State of Minnesota)
EA	environmental assessment
ELT	ecological landtype
FEIS	final environmental impact statement
FRCC	fire regime condition class
FS	Forest Service (USDA)
GYMPAC	Gypsy Moth Program Advisory Committee (interagency)
HFRA	Healthy Forest Restoration Act
LE	landscape ecosystem
MA	management area
MDA	Minnesota Department of Agriculture (State of Minnesota)
NA S&PF	Northeast Area State and Private Forestry (USDA Forest Service)
NF	National Forest
NFS	National Forest System (USDA)
NNIS	non-native invasive species
NSU	Northern Superior Uplands
PA	project area
RNA	Research Natural Area (USDA Forest Service)
ROD	record of decision
SNA	Scientific and Natural Area (State of Minnesota)
SNF	Superior National Forest (USDA Forest Service)
STS	Slow-the-Spread (USDA Forest Service)
TES	Threatened, Endangered, and Sensitive (species)
USDA	United State Department of Agriculture
WUI	wildland urban interface

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Overview

The purpose of this information package is to provide information on a cooperative proposal to slow the spread of gypsy moths along the North Shore and to learn what concerns or questions people have with the proposal.

An interdisciplinary team will review the public comments and determine if additional issues should be analyzed. Issues are specific to the proposed action and project area.

The Public Information Package has four sections:

1. Describes the need for slowing the spread of gypsy moths and describes the proposal
2. Outlines a no-action alternative and the alternatives that have been eliminated from detailed study
3. Summarizes the preliminary effects analysis of the proposal and of taking no action.
4. Has instructions on how to comment.

1 Need for Action & Proposal

1.1 Non-native Invasive Species

Invasive species are major threats to our Nation's aquatic and terrestrial ecosystems. Invasives destroy fish and wildlife habitats, alter nutrient cycling and natural fire regimes, and can reduce biodiversity and degrade native ecosystem health.

Invasive species recognize no borders. Prevention and control of invasive species require tremendous cooperation across all landscapes and among public and private stewards of the land.

Invasive species come in all shapes and many guises: nonnative insects (e.g., Asian

longhorned beetle, emerald ash borer), land-based and aquatic invasive plants (e.g., weeds, ornamentals, trees), diseases and pathogens (e.g., white pine blister rust, Dutch elm disease) — the list is almost endless.

Invasives have the capacity to dominate, overwhelm, or wipe out native species. Chestnut blight all but killed the American chestnut and Dutch elm disease decimated elm trees from our landscape.

1.2 Gypsy Moth

The European gypsy moth (*Lymantria dispar* L.) is not native to the United States. It is currently established in 19 states. Minnesota does not have any known permanently established populations. The closest known populations are in central and northern Wisconsin and in the Upper Peninsula of Michigan (see map of Gypsy Moth Slow-the-Spread Action Area and Gypsy Moth Quarantined areas). *'Established' means there are reproducing populations near each other, established populations cannot be eliminated by focused treatments.*

Gypsy moths move into new areas primarily in two ways. One is on their own – wind blows the tiny, newly hatched caterpillars a short distance into new areas. The other way is with the help of people – they hitch a ride on cars, boats, lumber, nursery stock, and other goods and materials and get transported to new locations.

Caterpillars feed on the foliage of many plants, but they prefer oaks, aspens, paper birch, basswood, and willows, which are all very common trees in Minnesota. As the caterpillars grow older and get larger, they are less picky about what they eat and they will feed on conifers such as white pine. At dense populations, gypsy moth caterpillars may eat all the leaves off trees and shrubs. After



Gypsy moth caterpillars defoliated 50% of the aspen in this stand in Wisconsin.
Photo: Wisconsin DNR, L. Williams

severe defoliations, trees and shrubs often become so weakened that other pests, drought, and diseases kill them.

High numbers of gypsy moth caterpillars can cause a substantial public nuisance, a reduction in tree growth, branch dieback and tree mortality. This damage to forests diminishes environmental quality and may affect human health and local economies. Widespread gypsy moth outbreaks can alter water quality, wildlife habitat, microclimate, and soil fertility (USDA 1995, Vol. IV, Appendix G, Ecological Risk Assessment).

In eastern states, ecosystems have generally recovered from gypsy moth damage, however there are still local outbreaks with defoliation.

1.3 Slow-the-Spread Program

Currently gypsy moths are migrating westward 13 miles per year. The Slow-the-Spread program (STS) reduces the ecological, social, and economic impacts of the first wave

of gypsy. The STS program is a national strategy for managing gypsy moths. It uses integrated pest management to reduce the rate of gypsy moth spread into uninfested areas. The goal of the STS program is to decrease the amount of new areas invaded by gypsy moths each year to protect forests, forest-based businesses, parks, and private property.

Areas where gypsy moth is established are called the 'generally infested' area. Next to this area is a band 50 to 100 miles wide, called the 'transition' area, where the gypsy moth is spreading from the generally infested area. The area where the gypsy moth is not established, is called the 'uninfested' area.

Different management strategies apply in these areas: suppression in the generally infested area, slow the spread in the transition area, and eradication of isolated infestations of gypsy moth in the uninfested area. *The objective of 'eradication' is to eliminate isolated infestations of the gypsy moth that are detected in the uninfested area, to prevent the*



Gypsy moth caterpillars defoliated 100% of the aspen in this stand in Wisconsin.
Photo: Wisconsin DNR, L. Williams

insect from becoming established. The objective of suppression is to reduce outbreak populations of gypsy moth caterpillars, thus minimizing heavy defoliation. Suppression does not eliminate the gypsy moth from the generally infested area, but reduces damage to ecosystems and effects on people in treated areas. The objective of 'slow the spread' is to slow the rate of spread of gypsy moth from the generally infested area, to delay the impacts and costs associated with gypsy moth outbreaks. This strategy entails intensively surveying the transition area and aggressively treating pockets of low-level gypsy moth populations to keep them from increasing rapidly.

It is likely that gypsy moths will eventually become established in Minnesota, with or without management. The Slow-the-Spread program is a critical component for reducing

or delaying the impacts and costs associated with gypsy moth outbreaks.

Before the Slow-the-Spread program was underway, the rate of spread was 13 miles per year. Since the STS program, the average rate of spread has been reduced to 6 miles per year along the transition zone. *The 'transition' zone is where the gypsy moth is transitioning from uninfested to generally infested.* The transition area is very dynamic and populations of gypsy moths generally increase over time as the area is colonized by gypsy moths.

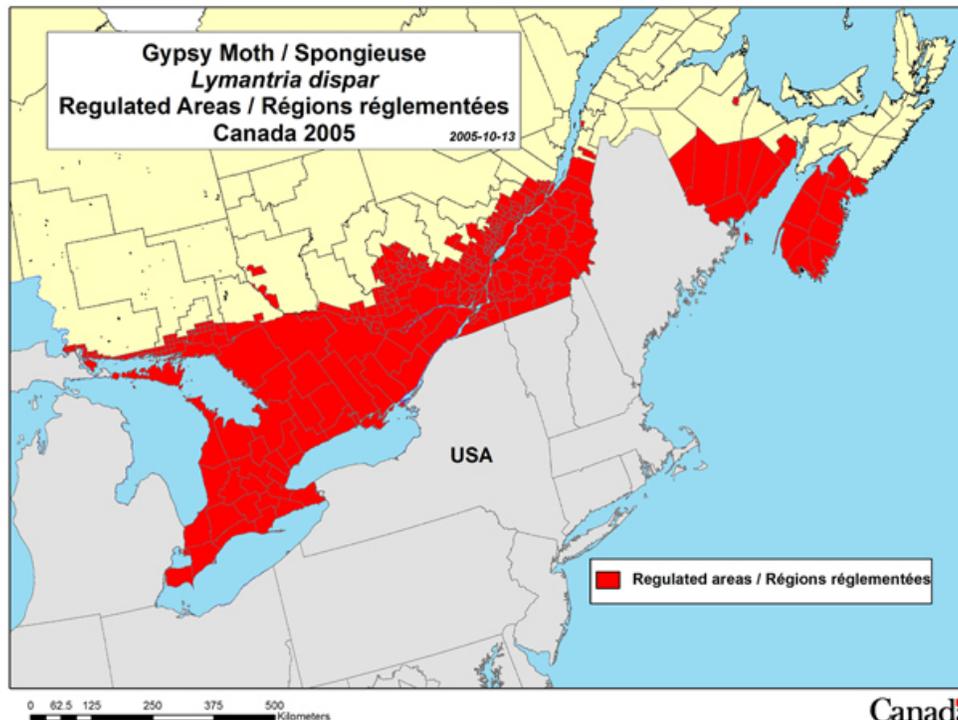
Comprehensive monitoring since 1993 has demonstrated that Slow-the-Spread projects can reduce the spread of gypsy moth by 50-70% over no treatment controls (A.A. Sharov, D. Leonard, A.M. Liebhold, E. Anderson Roberts, and W. Dickerson. 2002). In Wisconsin, Slow-the-Spread treatment projects have been occurring on state, county, and private forests since 1999.

Minnesota has become an active participant of STS. Gypsy moth populations have been monitored in Minnesota since 1973 and on the Superior NF every year since 1999. In 2001, the Minnesota Gypsy Moth Program Advisory Committee was formed. Committee membership includes

- State of Minnesota
 - Department of Agriculture
 - Department of Natural Resources
 - Parks
 - Forestry
- US Department of Agriculture
 - Animal and Plant Health Inspection Service
 - Forest Service - Northeastern Area, State, and Private Forestry
- University of Minnesota



Canadian Food Inspection Agency / Agence canadienne d'inspection des aliments



The Committee makes recommendations regarding gypsy moth management. This group interacts with the STS national program to develop recommendations for managing gypsy moths in Minnesota.

Since 1980, about thirty infestations of gypsy moths have been detected and eradicated in Minnesota, mostly in the Twin Cities and southeast corner of the State. Most recently, in 2002 a successful eradication project was conducted on approximately 2260 acres in Hennepin County, Minnesota.

In 2005, the Minnesota Department of Agriculture and Forest Service treated 640 acres with *Bacillus thuringiensis* (Bt) on the Superior NF and adjoining public and private land near Tower because egg masses were found in that area. Monitoring in 2005 found no moths in the treated area, and monitoring will continue next season.

Due to the proximity of gypsy moth populations in northern Wisconsin and the Upper Peninsula of Michigan and because of repeated low-level captures of male moths along the North Shore since 2000, the gypsy moth STS “action” boundary was expanded into northeast Minnesota to include all of Cook and Lake Counties (see map of Gypsy Moth Slow-the-Spread Action Area and Gypsy Moth Quarantined Areas). *The “action” area is where gypsy moth is intensively monitored and managed to prevent establishment and spread, it moves as the moth front moves so it is always ahead of the infested areas.* Intensive management in the action area is designed to slow the rate of spread of the gypsy moth into the uninfested area.

Gypsy moths are monitored by baiting traps with pheromone to attract male moths and capturing the moths in the traps. Traps are set

at different densities, largely depending on the previous years’ monitoring results.

The 2005 monitoring season unexpectedly captured a record number of male moths in Cook County. Cook County alone surpassed the state record (953 moths) by catching 1,068 of the 1,310 moths captured in the state for the 2005 season. There had been an increase in moth captures, from about 25-30 for the entire county since 2000, to 193 moths in 2004. The jump in moth catches is due partially to increased trapping intensity, but it also suggests a reproducing and building gypsy moth population across the area. The presence of reproducing gypsy moth population in the area is further supported by the repeated moth captures since 2000 (Tables 1 and 2). However, no egg masses or other life stages were identified during this survey.

Until recently it was anticipated that permanent infestations would not be in Minnesota until 2006 or 2008 (Burks 2004, Shade Tree Short Course); however gypsy moth behavior on the North Shore and other Lake States has called this into question.

At this time there are no quarantined nurseries or mills in Cook, Lake, or St. Louis Counties. However, there are 16 mills and 7 nurseries that are considered moderate or high risk for gypsy moth introduction in the three counties.

Because the arrowhead of Minnesota is adjacent to Canada, it is important to consider the status of gypsy moths north of the border. Much of the area north of the international boundary in the eastern Provinces are regulated for gypsy moths (similar to infested, quarantined areas) (see map Gypsy Moth, *Lymantria dispar*, Regulated Areas, Canada 2005).

The Canadian Food Inspection Agency restricts the movement of roundwood from

infested parts of Ontario into uninfested areas¹. Moths have been trapped on the Canadian north shore of Lake Superior, around Thunder Bay, and Quetico Provincial Park. At this time, Ontario does not have a formal trapping program; however northwestern Ontario is not known to currently be infested.

1.4 Purpose and Need for Action

In order to slow the spread of the gypsy moth population, there is a need to effectively manage the gypsy moth population in Cook County with minimal adverse impacts to the environment. It is important to treat gypsy moths now, while the population is low, when treatment methods with fewer adverse environmental impacts are effective.

The objective of the project is to prevent the widespread establishment of reproducing gypsy moth population and to meet State (18G.01) and Federal statutory requirements. It is important that the Forest Service cooperates in this project to assure National Forest System land do not unduly contribute to a rapid spread and establishment of gypsy moth in Minnesota. An established gypsy moth population would make it more likely that gypsy moths would spread to other parts of Minnesota more quickly.

At a national level, an integrated pest management approach was selected to manage gypsy moths nationally, which included three

management strategies (ROD; USDA, 1996). These management strategies were suppression, eradication, and slow-the-spread.

Until recently, all of Minnesota was in the eradication area. Detection traps have caught male gypsy moths in the project area in both 2004 and 2005 (see Tables 1 and 2 and map of North Shore Moth Finds 2005). From 2004 to 2005, there was a dramatic increase in the number of male moths trapped, indicating that the population is beginning to increase and the Arrowhead region of Minnesota was designated as an action area in the STS program.

Gypsy moth has become established in other states with climates similar to Minnesota's. The impacts from gypsy moths is expected to be greater without treatment than if the front advanced with treatment.

Once gypsy moth becomes established throughout a county, the annual production and value of agriculture, horticulture, and forestry products may be directly impacted, as well as indirectly impacted through the

Table 1. Monitoring Results from 2000 to 2005 in Cook County

Year	Number of Moths Caught	Number of Traps Set
2000	~30	520
2001	~30	521
2002	~30	549
2003	~30	851
2004	193	1,028
2005	1,077	2,093

Table 2. Monitoring Results for 2005

County	Number of Moths Caught	Number of Traps Set
Cook	1,077	2,093
Lake	118	1,240
St. Louis	51	287

¹ Goods from gypsy moth regulated areas of Canada and destined to non-regulated areas of the US must be: 1) inspected by a Canadian Food Inspection Agency inspector and; 2) accompanied by a Phytosanitary Certificate as being free of gypsy moth or having been fumigated and; 3) must comply with the Plant Quarantine Import Requirements of the U.S. Non-propagative forest products from gypsy moth regulated areas of Canada, may be permitted entry into a non-regulated area of the US for processing purposes, without a Phytosanitary Certificate, if destined to a processing plant or mill in the US which has signed a compliance agreement with the USDA or state phytosanitary authorities, and have been granted a special permit which waives the requirement for a Phytosanitary Certificate.

imposition of quarantines. Federal regulations prohibit the movement of certain items from those parts of the county regulated for gypsy moth to any unregulated part of the United States (7 CFR 301.45) (see map of Gypsy Moth Slow-the-Spread Action Area and Gypsy Moth Quarantined Areas). In general, articles requiring inspection and certification prior to movement include the following

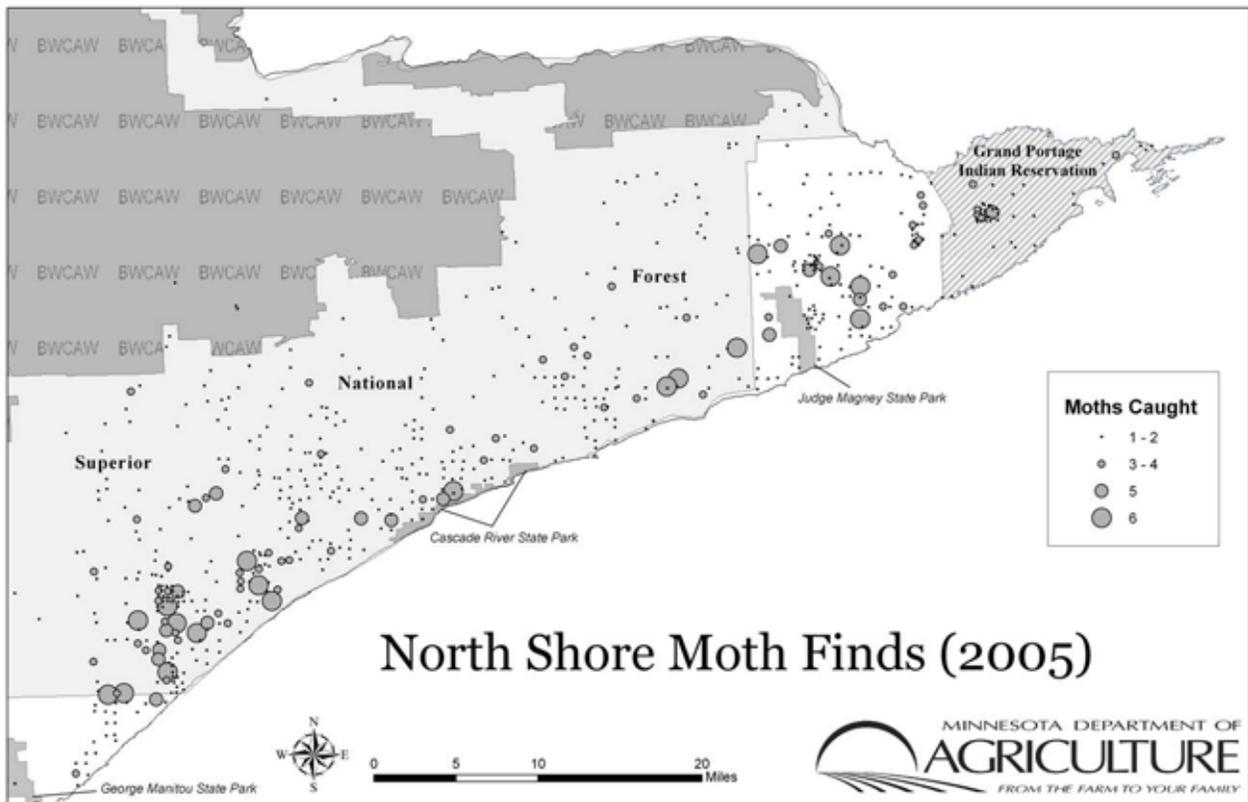
- Nursery stock and Christmas trees
- Logs, pulpwood, and wood chips
- Mobile homes and associated equipment
- Outdoor household articles, such as outdoor furniture, barbecue grills, firewood, doghouses, boats

Infestations can also cost homeowners money to remove and replace trees and to apply pesticides. Loss of shade trees may reduce property values. Skin and hair shed by growing caterpillars may aggravate rashes or

respiratory ailments in people with allergies.

It is unknown exactly how long it would take for gypsy moths to become a nuisance in Cook County. Some areas seem to take a number of years to for gypsy moth to build to noticeable levels and in other areas the populations build quickly to noticeable levels. It can take anywhere from 2 to 10 years after an area has established gypsy moth populations to reach levels that cause defoliation, it is assumed that they would be a nuisance at or before that time.

The Slow-the-Spread program calculates a priority index for proposed treatment areas. The priority index indicates how important it is to manage gypsy moth in an area. If priority index is equal to or greater than 2.8, the area is recommended for treatment in the following year. The following are the priority indices for the four treatment units:



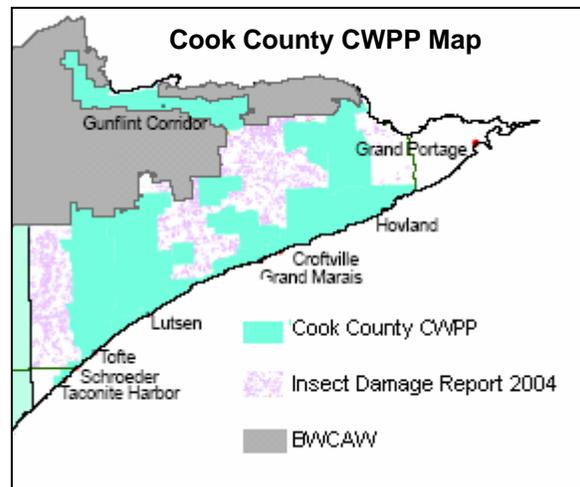
- Schroeder Complex – 3.4
- Kadunce River – 2.8
- Tom Lake – 3.0
- Farquhar Peak – 3.0

An interdisciplinary team compared the existing conditions on the ground in Cook County with the desired conditions and objectives in the Superior NF Forest Plan and found a need to manage gypsy moths. The Superior NF Forest Plan directs the Forest Service to do the following:

- Work cooperatively with other landowners and land managers
- Minimize insect outbreaks
- Use integrated pest management to avoid epidemics of non-native invasive species
- Manage vegetation to control insects at developed recreation sites
- Manage viewsheds for scenic beauty in Recreation Use in a Scenic Landscape Management Area
- Manage vegetation to enhance the recreation experience and maintain the near-natural environment and improve scenic values on Scenic River Segments
- Control non-native invasive species in Research Natural Areas and Candidate Research Natural Areas

The State of Minnesota has a responsibility to protect non-federal land from gypsy moth damage, similar to the need of the Superior National Forest to protect National Forest System land from gypsy moth damage. The NA S&PF is responsible for coordinating gypsy moth-related activities and for coordinating with States in protecting federal land, as established in the USDA departmental gypsy moth policy (USDA 1990).

The situation in Cook County meets the national criteria for treatment: low numbers of male moth trap catches, virtually no other



life stages present, and located close to the infested area. The number of moths are not yet high enough to cause damage but those that are present are too close to the infested areas to remain untreated (USDA 1995).

This project would slow the spread the gypsy moth population in Cook County and delay introduction of the pest further into Minnesota and other parts of the nation. Slow-the-Spread projects are most effective when the gypsy moth population density is low, as is the case in Cook County.

Without treatment, gypsy moth populations would continue to build, increasing in numbers and in extent. It is likely that this will occur eventually even with treatment, but that the proposed treatments would reduce the speed of this process.

The Forest Service also has national direction to manage gypsy moths. The Chief of the Forest Service identified non-native invasive species as one the major threats to clean air; clean water; wildlife habitat; and fire-safe, healthy forests.

Cook County has developed a Community Wildfire Protection Plan (CWPP) working collaboratively with Tribal representatives, federal agencies, state agencies, local

governments, landowners, stakeholders, and community-based groups (see map of Cook County CWPP areas). The CWPP prioritized four areas as high for protecting life, property, and critical infrastructure; these areas are Tom Lake, Devil Track, Mid-Gunflint Trail, and Lutsen Township. In Cook County, the following communities are communities at risk from wildfire: Taconite Harbor, Schroeder, Tofte, Lutsen, Grand Marais, Croftville, Hovland, and Grand Portage. *At risk communities are where fuel conditions are conducive to a large-scale wildland fire disturbance event and there is a significant threat to human life or property exists as a result of a wildland fire disturbance event.* It is especially important to prevent more fuels from being created in these areas, which would be one likely outcome of gypsy moth establishment.

1.5 Proposed Action

Who, What, How, Where, and When

Working cooperatively, the USDA Forest Service Superior National Forest, the Minnesota Department of Agriculture (MDA), and the USDA Forest Service Northeast Area State and Private Forestry (NA S&PF), propose to manage gypsy moth population in the summer of 2006 to slow-the-spread of

gypsy moth.

The Forest Service and the State proposes to apply a pheromone that disrupts gypsy moth mating. The female pheromone is the scent that attracts male moths. In order for it to be distributed, a synthetic pheromone is embedded into tiny plastic flakes. The pheromone floods the area and confuses the male gypsy moths so they cannot find female moths. The gypsy moths then die without reproducing more moths. The pheromone is detectable only to gypsy moths, so no other invertebrate species would be harmed and birds and mammals would not be adversely affected. Effects to people from the pheromone have not been documented in the 16 years that product has been used (USDA 1995).

The pheromone is called disparlure. Disparlure would be applied by airplane on 133,275 acres on all ownerships in the project area (see Table 3 and the enclosed two maps of proposed gypsy moth treatment mating disruption blocks). The flakes are very small green plastic

Plastic flakes that hold the pheromone are very small: 1/32" x 3/32",
Actual Size →

Block	Ranger District	Acres of Treatment	Ownership				
			NFS	State	Cook County	Other Ownership	No Ownership Data
Schroeder Complex	Tofte and Gunflint	90,697	66,184	11,440	0	9,926	3,147
Kadunce River	Gunflint	1,242	954	0	0	288	0
Tom Lake	Gunflint	35,797	4,726	13,460	155	17,456	0
Farquhar Peak	Gunflint	5,539	738	3,932	0	206	663
Total		133,275	72,602	28,832	155	27,876	3,810



When aircraft apply pheromone the flakes practically are invisible
Photo: J. Maentainis

flakes, like confetti, and would be applied at a low dose resulting in an average of less than two flakes per square foot (approximately 6 grams of active ingredients per acre). The range of flakes that would land in one square foot is 0-4. The flakes would stick to leaves and branches and emit the pheromone into the air.

Aircraft would pass over the entire area of each treatment block one time, flying at approximately 100 to 200 feet above tree tops. From the ground it could appear that a plane is passing over the same area because the aircraft can only treat an area the width of the planes wings with each pass. Treatment would be avoided over lakes, rivers and other open water.

The application would happen once in late July or early August 2006, just before adult moths emerge from pupae (similar to cocoons). The STS program has successfully limited gypsy moth populations with pheromone flakes for 16 years, with no known adverse effects to the environment (Reardon et al. 1998, USDA 1995).

Mating disruption is best suited for areas that have low populations (Reardon et al. 1998,

USDA 1995), such as in Cook County at this time.

The proposed treatment area is broken into four blocks in Cook County along the north shore of Lake Superior between Schroeder and Hovland (see enclosed maps of proposed treatment blocks). No treatment is proposed in the Boundary Waters Canoe Area Wilderness.

Pheromone treatment reduces the reliability of trapping during the year of application; therefore post-treatment trapping would be done in 2007, 2008, and 2009 to monitor treatment effectiveness. In 2007, traps would be placed 2 kilometers (1.2 miles) apart. In 2008, traps would 500 meters (1,640 feet) apart (trapping in 2009 would depend on 2008 monitoring results). Monitoring would continue outside the treatment units.

Success would be measured by subsequent monitoring. When there is at least a threefold reduction in the moth trapping counts after treatment, the project would be considered a success.

An environmental impact statement (*Gypsy Moth Management in the United States: a cooperative approach, USDA 1995*) discloses the effects of implementing overall gypsy moth management programs. The Record of Decision for *Gypsy Moth Management in the United States* (January 1996) provides the direction for implementing site-specific treatments. The proposed action tiers to this direction, and the analysis is being done to disclose impacts of this site-specific proposal.

Healthy Forest Restoration Act (HFRA) Authorization

The proposal is authorized under Title IV, Insect Infestations and Related Diseases, of

the Healthy Forest Restoration Act because the proposed action is:

- Consistent with the Superior NF Forest Plan
- Not in a wilderness area
- Collaboratively developed proposed action
- Identified through a collaborative process
- On Federal land on which windthrow or blowdown, ice storm damage, the existence of an epidemic of disease or insects, or the presence of such an epidemic on immediately adjacent land and the imminent risk it will spread, poses a significant threat to an ecosystem component, or forest or rangeland resource, on the Federal land or adjacent non-Federal land

Because this project is authorized under HFRA, the Forest Service will analyze a no action alternative and the proposed action (see Section 2). HFRA also has requirements for collaboration and public involvement (see Sections 2 and 4). HFRA projects are subject to a pre-decisional objection process (36 CFR 218) (see Section 4).

1.6 Decision to be made

The proposed project area includes several ownerships. There will be one decision for treatment on National Forest System land and a separate decision for treatment on all other ownerships. The responsible officials will decide whether to implement the proposed action. If the decision were made to implement the proposed action, they would decide:

- Whether to implement the proposed action or to modify the proposed action
- If mitigation measures are needed
- What monitoring is required

- Whether implementation of the selected alternative is likely to have a significant impact that would require further analysis in an environmental impact statement

The Forest Supervisor for the Superior National Forest is the responsible official for activities proposed for National Forest System land.

The Field Representative at USDA Forest Service, Northeastern Area State and Private Forestry, in St. Paul, Minnesota is the responsible official for activities proposed for all other ownerships.

1.7 Public Involvement and Collaboration

In November 2005, the Minnesota Department of Agriculture contacted the Forest Service to discuss the gypsy moth trapping results. This led to several interagency meetings between the Forest Service and MDA to develop the proposal. Other agencies were also involved at this point, including Grand Portage Band of Chippewa; Cook, Lake, and St. Louis Counties; and Minnesota Department of Natural Resources Forestry and Parks Divisions.

The Forest Service and the State have met with many groups and individuals to discuss ways of getting the most people involved and to identify potential concerns with the proposal.

In January 2006, this project appeared in the Superior NF's quarterly schedule of proposed actions.

During the 30-day comment period, there will be public meetings to answer questions about the proposed action.

The Responsible Officials will consider written public comments that are specific to the proposed action when making a decision. Instructions on how to comment on this proposal are in Section 4.

2 Alternatives

Because this project is authorized under the Healthy Forest Restoration Act, the Forest Service will study, develop, and describe the proposed action and a no action alternative.

2.1 Alternatives to be Studied in Detail

The EA will compare the proposed action to a 'no-action' alternative (Section 1.5 describes the proposed action). Under the no action alternative, no measures to manage gypsy moths would be taken in 2006 in the project area by MDA or the FS. The no action alternative would not preclude future treatments (of various kinds). MDA and the Forest Service would continue to monitor gypsy moth populations.

2.2 Alternatives Considered but Eliminated from Detailed Study

The Responsible Officials and the interdisciplinary team reviewed alternatives that were proposed during collaborative meetings. They determined that some of these alternatives did not meet the purpose and need for the project.

Manage Gypsy Moths with Btk

Btk is a bacterial insecticide that is very effective at managing gypsy moths, but it can also kill other caterpillar species that are feeding in the early spring when Btk applications occur. This alternative was eliminated at this time because at the current moth densities, pheromone flakes are likely to

be equally effective at slowing the spread of gypsy moths as Btk while minimizing negative effects to non-target organisms. Therefore this alternative would not meet the project's purpose and need of effectively managing gypsy moths and minimizing effects to non-target species.

Manage Gypsy Moths with their Natural Predators

This alternative was eliminated because this treatment method is not developed at this time and is not a management option; therefore this alternative would not meet the purpose and need of managing gypsy moths and slowing the spread of gypsy moths.

Apply Pheromone without Plastic

This alternative was eliminated because this treatment method is not developed at this time and is not a management option; therefore this alternative would not meet the purpose and need of slowing the spread of gypsy moths.

3 Preliminary Environmental Analysis

This analysis is preliminary, it is not finalized yet. This information is presented here so that the public and other agencies can provide us with additional information we have not yet considered. Please see Section 4 for instruction on how to comment.

In addition to a site-level analysis, the environmental assessment (EA) for this project will use the analysis in the Final Environmental Impact Statement (FEIS): *Gypsy Moth Management in the United States: a cooperative approach* (USDA, 1995) to estimate potential effects. The FEIS is an environmental review and analysis of strategies and treatment options for managing

gypsy moths. Analysis contained in the 1995 FEIS is considered in this current project proposal. The current cooperative effort in Minnesota analyzes projects and proposes appropriate local-level treatment. The FEIS is currently being updated; however we do not anticipate findings that would change this proposal.

The EA analysis will also use analysis in the Forest Plan Revision EIS. The Forest Plan EIS analyzed the effects of differing harvest levels and methods on terrestrial and aquatic non-native invasive species, relative fire risk, spruce budworm, and forest tent caterpillar.

Because this project is authorized under the Healthy Forest Restoration Act, the analysis will address the threat from the gypsy moth. This will be done in the discussion of the short- and long-term effects of taking no action. The project record has detailed information on how the specific treatment blocks were developed.

3.1 General Consequences

This analysis is based on experience with gypsy moths in other areas of the United States and from the national environmental impact statement on gypsy moth management (USDA 1995).

Proposed Action

The national EIS analyzed the risks of gypsy moth treatments. This assessment logically and scientifically studied how pheromone treatments affects human health and the environment (USDA 1995, Appendix F). The analysis concluded that effects to humans have not been documented from exposure to Disparlure over the 15 years it has been used.

During the collaborative meetings, the public and other agencies identified some concerns

with the proposal; however most of the concern was with the potential adverse effects from gypsy moths rather than from the proposal. The concerns raised about the proposed action were how effective pheromone flakes would be and the effects of plastic from the flakes on the environment. There is evidence and experience to indicate that pheromone flakes will be effective at slowing the spread of gypsy moths. To reach the goal of reducing the moth catches during monitoring by threefold, it may be necessary to treat the same or similar area in the next few years. Any subsequent treatment would require additional analysis and decision process.

The plastic that the pheromone is embedded in is a laminated polymeric solid dispenser for aerial application. This material can persist in the environment for 10 to 15 years (Reardon et al. 1998). Like all plastics, the flakes are not capable of biodegrading; however, their structure would break down over time and the flakes would turn into even smaller pieces and into dust eventually. At the proposed treatment rates, approximately one to two flakes would be present on each square foot of land, roughly ¼ cup of flakes per acre.

The only documented environmental hazard with this plastic is if it were burned it may produce carbon monoxide (CO), carbon dioxide (CO₂), hydrochloric acid mist (HCl), and chlorine gas (Cl₂). It is not anticipated that the plastic flakes would catch on fire before they are applied because of the safety precautions that would be taken with storing and transporting chemicals. After the flakes are applied they would burn only if the vegetation they are stuck to was on fire, in which case the gases given off from the flakes would be miniscule when compared to the volume of gasses and chemicals given off by a tree or forest on fire.

If pheromone flakes were applied every other year in the same area, they could accumulate in very small, isolated areas. However, because of their small size and green color, it is not anticipated that they would be noticeable to people. If the flakes were to accumulate in one spot and break down in one spot, that piece of ground would have more plastic in the soil, again, it is not anticipated that this would measurably affect soil or water quality.

The pheromone flakes are also mixed with an adhesive agency so that the flakes can stick to foliage or other plant surfaces. The adhesive is a multipolymer resin emulsion. The US Environmental Protection Agency considers these compounds to be inert ingredients and are not studied for their environmental effects (Reardon et al. 1998).

No Action

The potential effects discussed here may happen even the proposed action were implemented because it is anticipated that the North Shore will eventually have an established gypsy moth population. Taking no action at this time would likely mean that these effects would occur sooner and be more intense.

Pesticide Use

Managing non-native invasive species is most effective when done across ownerships. If the State and the Forest Service were to not manage the gypsy moth population, there is a potential for greater insecticide use on private property. It is anticipated that private property owners would use harsher chemicals than the pheromone in this proposal. This could lead to greater impacts to the environment from pesticides than under the proposed action, potentially adversely affecting non-target wildlife species.

Quarantine

It is anticipated that there would eventually be a quarantine on mills, firewood, nursery stock, and household items.

Goods can be shipped out of the quarantined area but must be accompanied by documentation that shows that it has been treated or inspected to comply with quarantine regulations. Quarantines do not outright prohibit movement of regulated articles but put conditions in place to ensure that gypsy moths are not shipped along with the regulated articles.

Federal (APHIS) quarantine sets forth the necessary steps to take to move regulated articles to an area that is not regulated. These necessary steps could include inspection and treatment to ensure that the articles do not have gypsy moths. The costs of the treatment would be born by the party (nursery, mill, etc) which wishes to ship or move the regulated articles. It is anticipated that Canada will continue to regulate and manage gypsy moths, which would reduce the potential source of gypsy moths coming to Cook County from the north.

Economic Losses

Potential effects to the local economy from gypsy moth defoliation and quarantine could include financial impacts to mills, nurseries, firewood dealers, tourism industry, and real estate.

Once an area is infested, the cost of gypsy moth management and gypsy moth-related lost revenue, is at least three times more than the cost of gypsy moth management when populations are still low. Property and business owners would have to pay for treating gypsy moths, removing caterpillars

and their droppings, removing egg masses, and repainting buildings.

Some people may spend less time outside recreating or may choose to recreate in areas that do not have noticeable gypsy moth populations. Repeated, heavy defoliation can change the aesthetic character of an area, which could in turn alter the recreation uses of an area.

Private woodlots may also lose value due to mortality, which could reduce property values. Homeowners and local governments may also have to replace damaged or dead trees and shrubs.

The forest products that could be harvested could also change. If there were moderate to heavy defoliation and subsequent mortality, the opportunities for salvage harvesting may increase from current levels in the short term. However, in salvage sales, the wood becomes unmerchantable quickly (one to three years). If there were wide spread mortality the local market may become flooded with salvage sales, which would likely reduce the price of the wood and reduce income to loggers and mills. There would also be a reduction in live harvests.

Firewood sellers may see similar increases in birch to be taken, but if too much wood were to die too quickly it would rot before it could be gathered. (Mortality in aspen would not be a concern for firewood because it is not typically used in commercial firewood sales.)

For other forest products, it would be expected that maples would increase in number and vigor if moderate gypsy moth defoliation increased the mortality of other species in the maple system. This could result in more maple sugar production. If gypsy moth population were very high, the caterpillar may defoliate maple as well, which if repeated a

few years in a row could result in maple mortality or reduced sugar maple production.

Potential Effects to Wild, Scenic, and Recreational Rivers

The Temperance River and the Brule River are both in the project area. The segment of the Brule River that extends downstream from the BWCAW to about six miles inland from Lake Superior is classified as a recreational river. The southern most six-mile segment of the Brule River is classified as scenic. On the Temperance River, the segment of the river from Plouff Creek to Lake Superior is classified as scenic.

The Pigeon River is not in the project area, but is next to the Farquhar Peak treatment block. The segment of the river within the Superior NF boundaries is classified as wild.

These areas are managed to protect or enhance their outstandingly remarkable values, free-flowing character, and classification. While, visitors may notice an airplane during operations, the proposed action would not adversely affect these values. Taking no action to slow the spread of gypsy moths could affect the scenic quality or water quality of the rivers from defoliation and dead caterpillars and caterpillar droppings. Again, the potential effects of taking no action may happen even if the proposal were implemented, however it is anticipated that those effects would occur farther in the future and be less intense.

Potential Effects to Forest Service Research Natural Areas (RNA), Candidate RNAs, Unique Biological Areas; and to State of Minnesota Scientific and Natural Areas (SNA)

There are three State SNAs in the project area Lusten, Hovland Woods, and Spring Beauty

Northern Hardwoods. On National Forest System land, there is one RNA (Schroeder), two Candidate RNAs (Blueberry Lake and Lutsen), and one Unique Biological Area (Dragon Lake) in the project area. The focus of these areas is preserving and maintaining areas for ecological research, observation, genetic conservation, monitoring, and educational activities. Severe defoliation from gypsy moths, especially if combined with drought stress, could adversely affect these areas; however it is not anticipated that these areas' value as reference conditions or educational tool would be compromised.

3.2 Consequences to Forest Type and Forest Health

Indicators of potential impacts of gypsy moth on the landscape are best reflected in changes to vegetation composition, structure, and function to include all ownerships in the project area (the four treatment blocks). The data used to evaluate these changes will include acreages and distribution of forest types as well as non-forest vegetation. The analysis will use data that are a combination of the most current and accurate data available for all ownerships.

Analysis Area

The analysis of direct and indirect effects will include a geographic area of at least one mile outside the project area (treatment blocks). This area was chosen because it would allow for the effects analysis to identify unanticipated changes in vegetation. The analysis will also look at the potential effects over five years after implementation. Five years was chosen because the effectiveness of the treatment would surely be evident by then.

The cumulative effects analysis will examine how no action and proposed action could affect the State of Minnesota over the next 10

years. The cumulative effects analysis may consider the following activities

- Past activities
 - Tower treatment with Bt in 2005 on 640 acres (approximately 40 miles to the west of the project area)
- Current activities
 - Tribal proposal to treat 2098 acres with Bt on the Grand Portage Reservation
 - Treatment to control other non-native invasive species, such as emerald ash borer and non-native invasive plants.
 - Canada's gypsy moth monitoring and management program
 - Eastside Thinning project (approximately 2,570 acres of thinning pine)
- Reasonably foreseeable future activities
 - Treatment by the Forest Service and the State of gypsy moth with other methods, including mating disruption (pheromone) and insecticides (Bt, diflubenzuron, and nucleopolyhedrosis virus)
 - Forest Service proposal to treat non-native invasive plants
 - Caribou fuel treatment proposal (may be approximately 600 acres of harvest, 150 acres of prescribed fire, and 200 acres of mechanical fuel reduction in the northern part of the Lutsen Township WUI)
 - Devil's Trout vegetation management proposal (may be approximately 1400 acres of harvest and 300 acres of fuel reduction only activities near Devil's Track Lake)

Affected Environment

At the present time, trap catches of male gypsy moths indicate that very low populations of this insect are scattered over a large portion of the North Shore landscape. Gypsy moth has shown the ability across the

Northeastern United States to expand into new areas where natural enemies do not exist, persist at low levels for several years, and then eventually reach outbreak status. It is believed that this same scenario will also occur in northeastern Minnesota (Katovich, 2006).

Forest land in Minnesota consists of approximately 16,195,000 acres (all ownerships) or approximately 32 percent of the State's total land area. Of this, approximately 14,759,800 acres are considered "timberland", or commercial forest (Miles, 2006).

Aspen/birch (6.3 million acres) and oak (0.9 million acres) dominated forest types make up approximately 44 percent of that total forestland (Miles, 2006). Quaking aspen, northern red oak, and paper birch rate as numbers 3, 4, and 9 respectively of the top 20 preferred tree species for consumption by gypsy moth within the coterminous United States (Liebhold, 2003). These three species are expected to be most heavily impacted. Minnesota's forests also commonly contain other tree species that are considered "most preferred" hosts for the gypsy moth including alder, tamarack, basswood, and willow. In addition, other tree species termed

"intermediate" in their desirability as a food source for the moth occur and include yellow birch, jack pine, red pine and eastern white pine (Classifying Forest Susceptibility to Gypsy Moth Defoliation, 1985). While the above species often dominate the composition of forested areas, they can also commonly occur as lesser components in other forested areas that are more mixed in composition.

At least 55% of all forested area in the Minnesota is characterized by land area covered by "highly susceptible stands" (>50% of the basal area in tree species preferred by the gypsy moth) (Liebhold, 2003).

The proposed project area is located within the Northern Superior Upland section of the National Ecological Hierarchy (USDA 2004a). The predominant Landscape Ecosystem (LE) is the Mesic Birch/Aspen/Spruce-Fir type of which birch and aspen comprise 60% of the forest types represented. Embedded within this larger LE, in a mid-slope band, is a secondary Landscape Ecosystem namely the Sugar Maple. Within this LE, Northern Hardwoods such as Sugar Maple dominate although a wide mix of other tree species occur.

All four proposed treatment blocks are heavily

Forest Type	Schroeder Complex	Kadunce	Tom Lake	Farquhar Peak
Aspen/birch	51%	55%	63%	39%
Oak species	<1%	<1%	<1%	<1%
Alder species	<1%	<1%	<1%	<1%
Tamarack	1%	<1%	<1%	<1%
Basswood	16%	7%	5%	13%
Willow	<1%	<1%	<1%	<1%
Jack Pine	1%	<1%	3%	4%
Red Pine	2%	2%	1%	2%
Eastern White Pine	2%	6%	5%	7%
Approximate Total	74%	71%	78%	66%

forested and include many of the trees species considered susceptible to gypsy moth. Table 4 displays, by percent of composition, “most” and “intermediate” preferred forest type within each treatment block.

Forested areas within the treatment blocks are currently recovering from the most recent (1998-2004) forest tent caterpillar defoliation which primarily impacted aspen/birch and oak forest types. These forest types saw repeated defoliations, to varying degrees, during that time frame. Widespread outbreaks of forest tent caterpillar occur at intervals of 10 to 20 years. Statewide the outbreaks last for three to five years (Minnesota Department of Natural Resources, Division of Forestry 1990).

Paper birch, is a major current component of the forested ecosystem along the North Shore, is in decline, and it is anticipated that birch stands will change to aspen over time with or without gypsy moth damage. This is largely due to a resource that is dominated by older age classes. Birch is also stressed by a variety of factors including alternating cycles of drought and forest tent caterpillar defoliation within the last 30 years; drying of soils due to increased soil disturbing activities such as development (roads, housing, powerlines, etc.) and harvesting; and damage to reproduction by deer. Attack and subsequent mortality of stressed trees due to insects such as the Bronze Birch Borer has contributed to the decline (Steve Katovich, USDA; Mike Albers, Minnesota DNR 2006).

Both the Sugar Maple and Mesic Birch/Aspen/Spruce-fir landscape ecosystems are classified as condition class 2 (see Section 1.5), indicating a “moderate” departure from historical fire frequency and severity. Within these condition class 2 areas, a moderate risk exists of losing key ecosystem components from fire. Currently, no areas in the four treatment blocks are mapped as condition

class 1 (fire frequency and severity is within historical ranges) or 3 (fire regimes have been significantly altered from historical ranges and a high risk exists of losing key ecosystem components from fire). (Patty Johnson, 2006).

Preliminary Effects Analysis of the Proposed Action on Forest Type and Forest Health

Direct and Indirect Effects Analysis

The proposed action would reduce the short-term negative effects of gypsy moth defoliation. The current forest condition would more likely remain unchanged and/or continue at the present successional rate (USDA 1995). For the near term, preferred host species such as aspen and oak would be maintained; the forest would also retain its overall composition and structural diversity.

Gypsy moth would maintain a presence in the area and would be maintained at low levels. Under this proposal, the rate of spread by gypsy moth to other areas could be reduced by more than 50% (Sharov 2002).

Preliminary Effects Analysis of No Action on Forest Type and Forest Health

Direct and Indirect Effects Analysis

If the current infestation were not treated and allowed to become established, it could spread faster than with treatment to manage the population. Gypsy moth levels could increase to the point where noticeable pockets of defoliation could occur within five to 10 years. Soon after that more widespread defoliation could occur (Katovich 2006). It is likely that some trees will be killed during the first outbreak in an area and quite possible that others will die in subsequent outbreaks. High-quality canopy trees may die, but mortality is usually heavier among already stressed or

weak trees. If defoliation were heavy for two years in a row or if severe defoliation coincided with drought, 50% mortality of oak, aspen, and birch would be expected (Schweitzer 2004). However this would be an extreme situation.

Impacts to trees would vary by amount of defoliation, tree vigor, and species. If less than 50% of a tree crown is defoliated, most hardwoods will experience only a slight reduction (or loss) in radial growth. When more than 50 percent of the foliage is consumed, oaks and most other hardwood species will refoliate in mid-summer. This refoilation will stress and weaken trees as they are forced to use stored starch reserves that would normally be used for protection, seed production and growth. Conifer that are completely defoliated would most likely die since they are unable to refoliate (Forest Insect/Disease Leaflet 162).

While aspen is anticipated to be relatively tolerant to defoliation, at least initially, older aspen stands are likely to deteriorate more quickly as gypsy moth joins forest tent caterpillar as a major aspen defoliator in the region (Katovich 2006).

The decline of paper birch, already a forest health concern, would be accelerated.

Preferred food sources, described above, would be most vulnerable with other, less desirable, food sources being affected as the gypsy moth population increases and spreads. Less desirable food sources, such as maple and balsam fir, could be expected to benefit from gypsy moth activity. In most locations where gypsy moth has been active and maple is present, an increase in the abundance and size of the maple at the expense of oak and aspen (dependant on site quality) can occur (Katovich 2006).

Gypsy moth is generally viewed as an agent that increases the rate of forest succession or moves the vegetation to a more climax condition.

Increases in standing and downed woody fuels due to mortality from gypsy moth activity will further contribute to current fuel loading and ultimately to fire frequency and severity as described for condition class 2.

It is anticipated that there would be an increase in fire hazard due to gypsy moth defoliation when tree mortality in an area during outbreaks.

Defoliation and mortality in riparian areas or fisheries could cause short-term temperature changes which could adversely affect stream fauna for a generation (often a year) or more (Schweitzer 2004).

Cumulative Effects Analysis

Long term, gypsy moth populations along the North Shore will spread slowly away from the area eventually reaching the more oak-dominated regions in Minnesota. This spread into other portions of the state will occur with or without established populations along the North Shore; however, the rate of spread could be strongly influenced by the presence of an extensive gypsy moth population in this portion of Minnesota (Katovich 2006).

3.3 Consequences to Wildlife

This section deals with animal and plant wildlife species, including threatened, endangered, and sensitive animal species.

To determine preliminary potential effects of the alternatives on wildlife species in the project area, vegetation data provided the key indicator to determine the amount and distribution of potential habitat for a wide

variety of species, including threatened, endangered, sensitive, and other species of interest. Vegetation type and age were analyzed to broadly compare conditions to management indicator habitats described in the Forest Plan (pp. 2-63 to 2-77, Tables-4 for each Landscape Ecosystem) and to identify the potential for occurrence of species associated with management indicator habitats (USDA 2004b; Final EIS, Vol. 2, Appendix D, Table DEIS-9 and DEIS-10, pp. D-37 to D-53).

Affected Environment

The project area currently provides a diversity of habitat for a large number of diverse wildlife species, including hundreds of species of terrestrial and aquatic mammals, birds, amphibians, reptiles, fish, invertebrates, insects, and other organisms. Habitats present in the project area range from aquatic habitats to young to mature and older deciduous, coniferous, and mixed forests to non-forest grass, sedge, moss, or shrub wetlands and uplands. These represent most of the Forest Plan management indicator habitats and other habitats of concern and their associated species. Some notable species known to occur in the area include federally threatened bald eagle (four nests), gray wolf, and Canada lynx and may contain Regional Forester Sensitive Species.

Analysis Area

The analysis for direct and indirect effects will include all ownerships within project area boundaries (the four treatment blocks). They will be analyzed because this is where gypsy moth is concentrated and where the treatments will be. This is where any potential impacts would occur. The analysis will examine effects that could occur immediately after treatment until two years after. This timeframe will be used because gypsy moths

will be impacting the project area this summer before treatments begin and will remain there until they die. Since the impact of defoliation from gypsy moth varies in intensity and varies by year or duration of defoliation, the analysis may look out to 2-10 years to be able to evaluate indirect effects.

The analysis of cumulative effects will include lands of all ownerships within the Northern Superior Uplands. If treatment is not successful, the populations here would serve as a source for continued spread to other parts of Minnesota.

In the cumulative effects analysis for wildlife, the same actions listed under vegetation will be considered.

Preliminary Effects Analysis of the Proposed Action on Wildlife

This discussion includes threatened, endangered, and sensitive species.

Direct and Indirect Effects Analysis

No direct or indirect impacts are likely to wildlife or their habitat from this alternative. This is because disparlure is specific to the gypsy moth and has low toxicity to vertebrates. Additionally, as used in mating disruption, disparlure is not likely to cause changes in non-target wildlife, forest condition, water quality, microclimate, or soil productivity and fertility.

Low level flying to apply disparlure has potential to disturb roosting or nesting eagles at the four known sites that occur in the project area. However, the flight over the nest would be very short in duration (less than a minute in the direct vicinity) and would occur during a time in the nesting season when the young will have fledged. Even if they use the nest sites to roost, eagles are not known to be

adversely affected by this type of disturbance this late in the nesting season. Thus no effects are likely to eagle.

Cumulative Effects Analysis

In the short term (1-2 years) the spread of gypsy moth, associated defoliation, and potential for alteration of forest habitats should result in no cumulative effects or measurable changes to wildlife. This is because disparlure is specific to gypsy moth and is unlikely to affect the habitat. Also, currently there are no substantial populations of gypsy moth known in the Northern Superior Uplands and thus no other projects for treating gypsy moths with disparlure.

Over the long term it is likely that gypsy moth will spread into Minnesota with or without established populations along the North Shore. But the speed at which the spread could occur could be strongly influenced by North Shore populations and thus if this alternative successfully slows the spread, it would have beneficial cumulative effects to wildlife from this and other future treatment projects.

Preliminary Effects Analysis from No Action on Wildlife

Direct and Indirect Effects Analysis

There would be no action taken and therefore there would be no direct effects to any wildlife species. In the short term (1-2 years) there would potentially be no measurable or very minor indirect effects to wildlife from forest defoliation in mid-summer. The changed condition of the vegetation would alter habitat conditions for wildlife, mainly through increase sunlight in the understory and decrease of shade. This is unlikely to alter wildlife composition in the short term since the area is unlikely to become completely defoliated and wildlife in the area are

adaptable to similar changed conditions that in the native ecosystem would have occurred from fire, windthrow, and other native insect defoliation events (such as forest tent caterpillar). Since few species feed on forest tent caterpillars, the increased populations of caterpillars are unlikely to affect insectivorous species such as birds or small mammals.

Long term (2-10 years) the potential for indirect impacts to species would increase and may become measurable depending on the extent and severity of defoliation. This is described in more detail in Section 3.2. Repeated years of defoliation may result in altered habitat conditions, with loss of both canopy and sub-canopy tree layers. A gradual change from aspen or birch forest habitats to red maple or conifer habitats would result in local beneficial impacts to species associated with young forest and mixed conifer-deciduous forest and local negative impacts to species associated with mature deciduous forest.

Cumulative Effects Analysis

In the short term (1-2) years, it is unlikely that any cumulative effects would occur since habitat alteration would not be extensive and gypsy moth populations have not yet significantly invades other parts of the Northern Superior Uplands. In the long term (2-10 years), as described under Section 3.2, gypsy moth populations are likely to continue to spread to much of the area. Forest-dependent species may be negatively affected by future defoliation events and the resulting tree mortality and changes in forest composition. Other species may benefit from changes in the understory brought about by defoliation and tree mortality.

3.4 Consequences to Non-native Invasive Plants and to Threatened, Endangered, and Sensitive Plants

This analysis of potential effects to plants will use the same indicators as the analysis of forest type and forest health.

Analysis Area

The spatial boundary for the direct and indirect effects analysis for plants will be lands within project area boundaries (the four treatment blocks), because this is where gypsy moth is concentrated and where treatments will be; therefore where any potential impacts would occur. The temporal boundary for the direct and indirect analysis of effects to plants from the present to a few weeks after project implementation. This timeframe was chosen because gypsy moth will be impacting project area this summer before treatments begin and would remain there until they die. This analysis will assume that the treatment is successful in managing the gypsy moth population.

The geographic boundary for the cumulative effects analysis will include lands of all ownerships within project area. This area was chosen because activity of gypsy moths and treatments of gypsy moths on adjacent ownerships could potentially affect vegetative cover on other ownerships, which could potentially affect TES plants or non-native invasive plants that cross property lines. The temporal boundary from present to a few weeks after project implementation. This analysis area was chosen because gypsy moth will be impacting project area this summer before treatments begin and will remain there until they die. This analysis will also assume that the treatment is successful in managing the gypsy moth population.

The cumulative effects analysis for plants will consider the same activities as listed under impacts to forest type.

Preliminary Effects Analysis of the Proposed Action on Plants

Because no ground disturbance would occur, the proposed action would not directly contribute to the spread of non-native invasive species. The proposed action would result in less defoliation and tree mortality than taking no action, which would mean that the micro climate that weeds need to thrive would not be affected. Therefore, under the proposed action, it is anticipated that non-native invasive plants would spread less than if no action were taken. This would result in no adverse effect to native plant species, including no effects to threatened, endangered, or sensitive plants.

Preliminary Effects Analysis of No Action on Plants

If no action were taken, non-native invasive plants would likely keep spreading, but it is not anticipated that gypsy moth defoliation would minimally hasten the spread. Non-native invasive plants would likely spread the most on Ecological Land Types (ELT) most at risk to weed invasion (ELTs 7, 9, 11, 16, 17, and 18). Defoliation and tree mortality could contribute to weed spread on these ELTs.

If no action were taken, minor adverse effects to most threatened, endangered, and sensitive plants are anticipated. For a few of these species that like shade, defoliation and increased light in forest understory could cause short term lack of vigor but no long term consequences. For Regional Forester sensitive species Douglas hawthorn, it could experience direct effects from defoliation because, like oaks and aspen, it is a favored species for gypsy moth.

4 Comment Instructions

Please provide us with comments specific to the proposed action. Your comments are most useful if they refer to effect, location or treatment described in this information package rather than general management of the Superior National Forest.

Your comments will be used to identify issues associated with this project and to refine the analysis of effects.

You may submit your comments by writing, faxing, and emailing. All comments received (including names and addresses) will become part of the project file and are public information. Please be sure to include your name and address and the title of the project regardless of how you submit the comments.

Written comments sent via mail, FAX, or email must be addressed to:

Jim Sanders, Forest Supervisor
ATTN: 2006 Cook County Gypsy Moth
Slow-the-Spread project
8901 Grand Avenue Place
Duluth, MN 55808
Fax: 218-626-4398

Electronic comments must be submitted in a format such as an email message, plain text (.txt), Word (.doc), or any software supported by Microsoft applications to: comments-eastern-superior@fs.fed.us.

If you do not wish to provide comments at this time, but wish to receive the Environmental Analysis, you must let us know. To keep our mailing list manageable, we will remove your name from the project mailing list if we do not hear from you,.

Pre-decisional Objection Process

The pre-decisional objection process is applied to projects authorized under the Healthy Forest Restoration Act, such as this project. This process differs from the regular Forest Service appeal process in that it takes place prior to the issuance of a decision document (36 CFR 218). Instead of mailing the decision to interested parties, we will mail the EA to those who provided written comments, and we will publish a legal notice that the EA is available and opportunity to object exists.

Individuals and organizations who have submitted specific written comments related to the project during the opportunity for public comment provided may file an objection (36 CFR 218.6 (a)).

Please note that comments received from an authorized representative(s) of an organization are considered those of the organization only (36 CFR 218.6 (b)). Individual members of that organization do not meet objection eligibility requirements solely on the basis of membership in an organization (36 CFR 218.6 (b)). A member or an individual must submit comments independently in order to be eligible to file an objection in an individual capacity (36 CFR 218.6 (b)).

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