DOE/EA-1433

DECISION NOTICE
&
ENVIRONMENTAL ASSESSMENT

COOPERATIVE GYPSY MOTH PROJECT

--ILLINOIS 2002--

USDA FOREST SERVICE
NORTHEASTERN AREA / STATE & PRIVATE
FORESTRY FOREST HEALTH PROTECTION
ST. PAUL FIELD OFFICE

ENVIRONMENTAL ASSESSMENT

Cooperative Gypsy Moth Project
For
Illinois 2002

by

Illinois Department of Agriculture

&

United States Department of Agriculture- Forest Service

For information or copies of this document, please contact:

James A. Cavanaugh
Illinois Department of Agriculture
Division of Natural Resources
Bureau of Environmental Programs
9511 West Harrison, Rm 169
DesPlaines, IL 60016
PHONE (847) 294-4343

OR

Michael W. Prouty
USDA Forest Service
Northeastern Area, State & Private Forestry
1992 Folwell Ave.
St. Paul, MN 55108
PHONE: (651) 649-5276

Table of Contents

1.0 PURPOSE AND NEED FOR ACTION

1.1 Proposed Action

The Illinois Department of Agriculture (IDOA) proposes a cooperative project with the United States Department of Agriculture, Forest Service (USDA-FS) to treat gypsy moth, *Lymantria dispar* (L.), (Lepidoptera: *Lymantriidae*), populations at 17 locations (see maps in appendix B) in Northern Illinois. Gypsy moth populations proposed for treatment cover an estimated 29,811 acres (Table 1).

The preferred alternative for Illinois in 2002 is alternative 2: to treat 12 sites with *Bacillus thuringiensis* var. *kurstaki* (Btk) using two applications applied in mid-May to early June and mating disruption at 5 sites by treating with one application of pheromone flakes (Disrupt II) in late June or early July approximately 2 weeks before male moth emergence (Table 1).

1.2 Project Objective

The objective of the cooperative project is to slow-the-spread of the gypsy moth by greatly reducing or eliminating reproducing populations from the proposed treatment sites.

1.3 Need for Action

The gypsy moth is an exotic insect to North America. Gypsy moth caterpillars are able to feed on the leaves of a wide variety of trees and shrubs. In the Lake States and the mid-west, highly preferred hosts include oaks, aspens, willows, apple, cherry, basswood, and birch. When high population levels exist their host preference can also include conifers. Because it is an exotic species (non-native), the gypsy moth is not well controlled by native parasites and predators in newly infested areas. High numbers of gypsy moth caterpillars can cause a substantial public nuisance, a reduction in tree growth and overall tree health, an increase in branch mortality, a reduction in diversity of forest tree species and changes in the forest ecosystem. Following large outbreaks, some tree mortality can occur, especially when outbreaks persist in any given area for 2-3 successive years. Widespread caterpillar outbreaks can affect human health (USDA 1995, Vol. III, Appendix F) and alter water quality, wildlife habitat, microclimate, and soil fertility (USDA 1995, Vol. IV, Appendix G).

Since the gypsy moth was accidentally introduced into Massachusetts in 1869, it has steadily expanded its range west and southward and is now established in about one-third of the potentially susceptible habitat in the United States. The treatments proposed and evaluated in this environmental assessment (EA) are part of an overall attempt to reduce the spread of gypsy moth throughout Illinois.

The Gypsy Moth Slow-the-Spread (STS) pilot project (1993-1999) demonstrated that the rate of spread of the gypsy moth could be reduced by approximately 60% through comprehensive monitoring and management of recently established populations inside an area called the "transition zone". A description of the STS program is available on the following website: **http://www.ento.vt.edu/STS/.**

Table 1. Proposed treatment sites, acres, products, and application rates for the

2002 cooperative gypsy moth project in llinois.

COUNTY	PROPOSED SITES	ACRES	PRODUCTS APPLIED
Cook	Cal-Sag/CCFPD	388	Btk aerial at 24 BUI's/A 2 applications
DuPage	Argonne **	1,887	Btk aerial at 24 BIU's/A 2 applications
DuPage	Downers Grove	1,572	Btk aerial at 24 BIU's/A 2 applications
DuPage	Lyman Woods	180	Btk aerial at 24 BUI's/A 2 applications
DuPage	Medinah-Nordic Hills	678	Btk aerial at 24 BIU's/A 2 applications
DuPage	Roselle	683	Btk aerial at 24 BIU's/A 2 applications
Kane	Batavia	386	Btk aerial at 24 BIU's/A 2 applications
Kane	Fabyan CFP	282	Btk aerial at 24 BIU's/A 2 applications
McHenry	Menge Rd	85	Btk aerial at 24 BIU's/A 2 applications
Winnebago	Harrison	83	Btk aerial at 24 BIU's/A 2 applications
Winnebago	NW Winnebago	240	Btk aerial at 24 BIU's/A 2 applications
Winnebago	South Beloit	379	Btk aerial at 24 BIU's/A 2 applications
Cook	Calumet City	601	Disrupt II aerial at 6 gm ai/A - 1 application
Cook	Palos Park/CCFPD	3,326	Disrupt II aerial at 15 gm ai/A - 1 application
Cook	Wentworth Woods	232	Disrupt II aerial at 6 gm ai/A - 1 application
DuPage	West Chicago-Wheaton	17,640	Disrupt II aerial at 15 gm ai/A - 1 application
Winnebago	Roscoe	1,169	Disrupt II aerial at 6 gm ai/A - 1 application
Total BTK - Aerial		6,843	
Total Mating Disruption - Aerial		22,968	
Total of All Proposed Treatments		29,811	

** The Argonne site includes the Argonne National Laboratory (about 700 acres) and an additional 1,187 acres composed of private residential lands and portions of the Waterfall Glen Forest Preserve, administered by the Forest Preserve District of DuPage County.

The STS program, which became fully funded and operational in 2000, includes a detailed protocol for selection and prioritization of treatment sites. This STS Decision-Support System is

discussed in detail on the following web site:
http://www.ento.vt.edu/~sharov/stsdec/sts00.html.

Based upon STS protocols a list of proposed treatment sites is identified. Once identified, participants in the cooperative program evaluate all proposed sites in order to develop the appropriate method of treatment for each one.

If no action was taken gypsy moth populations would more rapidly expand within Illinois and to neighboring states. Economic losses from the death of valuable urban and rural trees, and the financial costs of controlling resident gypsy moth populations would occur sooner. Homeowners, especially those with wooded lots, would have to deal with occasional outbreaks. Gypsy moth population outbreaks often lead to tree defoliation and death, and result in large numbers of caterpillars crawling on and around homes and outdoor articles. Thus, without treatment homeowners could lose the use of their outdoor property during June.

Much of Illinois' forests are dominated by oak, which is the preferred host of the gypsy moth. Natural areas and state and federal forest ecosystems would likely begin to lose their dominant oaks. The biotic component of these communities would begin to change and cause a potentially negative impact on their quality.

In addition, if gypsy moth becomes well established in a county, regulatory activity (i.e. quarantine restrictions) would occur on such products as Christmas trees, raw wood products and nursery materials. Illinois' nursery industry, which covers approximately 33,000 acres, and the raw wood products industry would be severely impacted by quarantine regulations. Household moves from quarantined areas would also be regulated. For these reasons, action is needed to delay and reduce these impacts. Therefore, this analysis focuses on environmental consequences of the proposed treatments (the preferred alternative) compared to the no action alternative.

1.4 Decisions to be Made and Responsible Officials

The preferred alternative, in this document, proposes cooperative participation of the USDA-FS and the IDOA to slow-the-spread of the gypsy moth. The decisions to be made by the USDA-FS responsible official are: is the proposed project biologically and ecologically sound, and is the preferred alternative appropriate and likely to be achieved such that the USDA-FS will participate in the project? The alternatives analyzed were:

1) No cooperative project (No Action); 2) Btk and mating disruption (Preferred Alternative) to eradicate or significantly reduce gypsy moth populations. In addition, the decision will have to be made as to whether or not any perceived significant environmental impacts could result from the implementation of this project. If there are none, these will be documented in a Decision Notice (DN) and Finding of No Significant Impact (FONSI). If there are perceived significant environmental impacts and the project is to continue, an Environmental Impact Statement (EIS) would have to be prepared.

The responsible official who will make these decisions is:

Michael W. Prouty, Field Representative

USDA Forest Service
1992 Folwell Avenue
St. Paul, MN 55108
(651) 649-5262

The official will make these decisions in April 2002 to ensure timely funding for an effective program that meets the state's objectives.

The responsible official for the Illinois Department of Agriculture is:

Stanley E. Smith, Nursery Manager
Illinois Department of Agriculture
Division of Natural Resources, BEP
9511 W. Harrison, Suite 169
DesPlaines, IL 60016
(847) 294-4343

1.5 Scope of the Analysis

The USDA Forest Service, along with USDA APHIS, issued a Final Environmental Impact Statement (FEIS) (USDA 1995) and Record of Decision (ROD) (USDA 1996), pursuant to the National Environmental Policy Act (NEPA), entitled "Gypsy Moth Management in the United States: a cooperative approach." Alternative six (6) selected in the ROD allows the Forest Service to support eradication, suppression and slow-the-spread strategies for gypsy moth management under various gypsy moth population scenarios. The population scenario in the area of Illinois involved in this proposed action is that of slow-the spread. This means that slow-the-spread activities and not suppression or eradication activities are appropriate (USDA 1995, Vol. II, p. 2-4 to 2-6). The treatment options that are available for use within a federally funded gypsy moth slow-the-spread project under alternative six of the FEIS are: the biological insecticide *Bacillus thuringiensis* var. *kurstaki* (Btk), the chemical pesticide diflubenzuron (trade name Dimilin®), the gypsy moth nucleopolyhedrosis virus (Gypchek®), mass trapping, mating disruption with Disrupt II pheromone flakes, and sterile insect release, (USDA 1995, Vol. II, p. 2-5).

The environmental analyses for the FEIS examined the environmental and human factors (FEIS 1995, Vol. II, Ch. 3 & 4) that might be affected by the alternatives considered for gypsy moth management (FEIS 1995, Vol. II, Ch. 2). The environmental factors analyzed included the following biological and physical factors: **the range of gypsy moth host vegetation, nontarget organisms** (including other insects, fish, wildlife, soil organisms, and rare or endangered species), **forest condition, water quality, microclimate, and soils.**

The human factors analyzed included the following social and economic factors: **human health and safety** (the potential for human exposure to, and subsequent risk from the use of insecticides), **perceptions and behaviors**, (the impact that tree defoliation and tree mortality caused by gypsy moth larvae feeding can have on homeowners) and **recreation** (the impact that tree defoliation and tree mortality caused by gypsy moth larvae feeding can have on recreationists), and **economic characteristics** (impact that larval nuisance, tree defoliation, and tree mortality may have on recreation, property values, aesthetic values, and the timber resource).

Environmental justice issues were also considered in the analysis for the FEIS in accordance with Executive Order 12899 (FEIS 1995, Vol. II, Ch.4).

This Environmental Assessment (EA) is tiered to the FEIS. The purpose of tiering is to eliminate repetitive discussions of the issues addressed in the FEIS (40 CFR, 1502.20 and 1508.28 in Council on Environmental Quality 1992). Thus, throughout this EA, many references to material in the FEIS will be used. This allows the EA to focus on issues specific to the action proposed. This EA documents the site-specific environmental analysis of the effects of implementing a gypsy moth slow-the-spread project in cooperation with the state of Illinois. This EA provides the Forest Service with the necessary environmental information for making the decision of whether or not to support the proposed action. This EA does not prevent private citizens from managing gypsy moth on their own, nor does it constrain their control activities. The only constraints of private citizen actions are those imposed by Federal and State laws, local ordinances, or specific insecticide labeling. In fact, if the Forest Service decides not to support the action, it is highly likely that gypsy moth control activities would be partially implemented by county and local government agencies, as well as by homeowners themselves. The impacts of these activities are included in this analysis under the "no action" alternative (Alternative 1).

This proposed project does include some Department of Energy land (Argonne National Laboratory). This proposed project does not include any National Forest lands in Illinois in 2002.

1.6 Summary of Public Involvement and Notification

The National Environmental Policy Act requires public involvement and notification for all projects utilizing federal funds that may have an effect on the human environment (40 CFR, 1506.6 in Council of Environmental Quality 1992). Scoping is the process used to identify significant issues and concerns related to the proposed project and to solicit input from the public. Articles and notices are placed in the local news media soliciting public input and comments and identifying the forum for providing the public's input. Scoping may be accomplished through various activities such as public meetings, personal communications, local radio or television call-in programs, open houses, or a log of callers' comments and concerns. A summary of the scoping activities by participating counties is provided in Table 2.

Table 2. Summary of scoping activities and contacts made for the 2002 Illinois gypsy moth treatment project.

COUNTY	SCOPING ACTIVITY	NUMBER OF CONTACTS
Cook	Meetings	12
DuPage	Meetings	143
Kane	Meetings	5
McHenry	Personal communications	65
Winnebago	Meetings	1

Community leaders, local interest groups, and local residents participated in the meetings. Notices of the meetings were mailed to community leaders, elected officials, interested groups and to the local news media.

The Illinois Department of Agriculture will notify local government and residents who are living within and surrounding the treatment sites by either news releases to radio, TV, and newspapers

and by placement of treatment signs within the proposed treatment sites prior to treatment. Notification will take place approximately 24 to 48 hours before treatment activities start.

1.7 Issues Used to Formulate the Alternatives

The following issues were developed from the comments received from the public, cooperating agencies, and other interested parties. These issues are the driving forces of this EA, and each can be tracked through the document. The issues help determine the alternatives (Chapter 2) and affected environments (Chapter 3), and guide the discussion of the environmental consequences (Chapter 4). They are grouped into two categories; 1) issues used to formulate alternatives, and 2) other issues and concerns. Specific questions and concerns raised during the scoping process related to the following four issues are presented and categorized by issue in Appendix A.

Issue 1. Human Health and Safety. Three types of risk are addressed under this issue, (1) an aircraft accident which might occur during applications, (2) Btk and pheromone flake contact to humans, and (3) the future effects of gypsy moth infestations on people.

Issue 2. Effects on Non-target Organisms and Environmental Quality.

Concerns about the effect of Btk and pheromone flakes on non-target organisms (including natural enemies of the gypsy moth, honey bees, terrestrial and aquatic insects, mammals, birds, fish, and other vertebrates) are discussed in Section 4.2. The discussion includes impacts on any federally or state listed threatened or endangered species. The section also discusses the potential impacts of a gypsy moth infestation on non-target organisms.

Issue 3. Economic and Political Impacts of Treatment vs. Non-Treatment. Gypsy moth outbreaks can have significant economic impacts on timber resources, nursery and Christmas tree producers, and recreational related businesses. The urban nuisance factor involves impacts on political organizations due to increased contacts, especially in the densely urban area of northeast Illinois.

Issue 4. Likelihood of Project Success. Reducing the spread rate of gypsy moth within Illinois is the objective of this project. Alternatives vary in their likelihood of success for the current situation occurring in northeastern Illinois. Project success is an important consideration when attempting to delay gypsy moth population buildup across the entire state.

1.8 Other Concerns and Questions

Concerns and questions were discussed during the public meetings (see Appendix A). They were used to develop mitigating measures, management requirements and constraints.

1.9 Summary of Authorizing Laws and Policies

State: The Illinois Department of Agriculture is authorized to carry out restrictive and control measures when it is deemed necessary and advisable and in so doing may co-operate with other state agencies and with the United States Department of Agriculture (Ill. Compiled Statutes Ch. 5055, Par. 90/20). Aerial applicators must meet the Illinois Pesticide Act (Ill. Complied Statutes Ch. 415, Par. 60/1, et. seq.) requirements for Commercial Applicators. The Illinois Endangered

Species Protection Act (Ill. Compiled Statutes Ch. 520, Par. 10/3, et. seq.) and the Illinois Natural Areas Preservation Act (Ill. Compiled Statutes Ch.525) also apply to this project.

Federal Authorization to conduct treatments for gypsy moth infestations is given in the Plant Protection Act of 2000 (7 U.S.C. section 7701) and in the Cooperation with State Agencies in Administration and Enforcement of Certain Federal Laws (7 U.S.C. section 450).

The Cooperative Forestry Assistance Act of 1978 provides the authority for the USDA and State cooperation in management of forest insects and diseases. The law recognizes that the nation's capacity to produce renewable forest resources is significantly dependent on non-federal forest lands. The 1990 Farm Bill (P.L. 101-624) reauthorizes the basic charter of the Cooperative Forestry Assistance Act.

The National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190), USC 4321 et.seq.) requires detailed environmental analysis of any proposed federal action that may affect the human environment. The courts regard federally funded state actions as federal actions.

The Federal Insecticide, Fungicide and Rodenticide Act of 1947, (7 USC 136) as amended, known as FIFRA, requires insecticides used within the United States be registered by the United States Environmental Protection Agency (EPA).

Section 7 of the Endangered Species Act prohibits federal actions from jeopardizing the continued existence of federally listed threatened or endangered species or adversely affecting critical habitat of such species.

Section 106 of the National Historical Preservation Act and 36 CFR Part 800: Protection of Historic Properties requires the State Historic Preservation Officer be consulted regarding the proposed activities.

USDA Departmental Gypsy Moth Policy (USDA 1990) assigns the USFS and APHIS responsibility to assist states in protecting non-federal lands from gypsy moth damage.

Executive Order #12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires that actions taken by Federal agencies will not result in disproportionately high and adverse human health or environmental effects on any minority populations and low-income populations.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Process Used to Formulate the Alternatives

Staff entomologists and administration within the IDOA, Division of Natural Resources, in cooperation with USDA-FS formulated several alternatives to treat gypsy moth populations in Illinois under the slow-the-spread strategy. (See Chapter 6)

The FEIS (USDA 1995), which this document is tiered to, allows the USDA to participate in the Cooperative Gypsy Moth Project for Illinois. The USDA can assist in conducting eradication, slow-the-spread and suppression strategies. The FEIS lists the treatment options for each of the strategies (USDA 1995, Vol. II, p.2-15). For the slow-the-spread strategy, the following six treatment options may be considered: 1) *Bacillus thuringiensis* var. *kurstaki (*Btk), 2) diflubenzuron (Dimilin®), 3) nucleopolyhedrosis virus (Gypchek®), 4) mass trapping, 5) mating disruption (Disrupt II, pheromone flakes), and 6) sterile insect release. These treatment options from the FEIS were used as the alternatives for the site-specific analysis of this EA.

2.2 Alternatives Eliminated from Detailed Study

The following alternatives were eliminated from consideration:

- **Use of diflubenzuron (Dimilin®) on the proposed sites.**

The label for diflubenzuron (Dimilin®) prohibits its use over wetlands and directly to water. Several of the treatment sites are adjacent to rivers or ponds. Most treatment sites have a wooded, urban habitat of varying population density. IDOA staff and the USDA-FS, have environmental concerns with the use of diflubenzuron near water, wetlands and residential areas. Therefore, its aerial use was not considered for this project. This does not preclude the consideration and use of Dimilin® in future projects.

- **Use the gypsy moth specific nucleopolyhedrosis virus (Gypchek®).**

Gypsy moth nucleopolyhedrosis virus (Gypchek®) is in very limited supply and is targeted for use in special areas that have highly sensitive environmental factors. In addition, there are questions as to the effectiveness of this material with low-level gypsy moth populations. It is preferably used in suppression projects against moderate to high gypsy moth populations. Therefore, Gypchek® is not considered for this project. In future projects, it will be evaluated for use.

- **Use of mass trapping.**

Mass trapping has proven capable of eradicating gypsy moth at low population levels in isolated introductions. Mass trapping requires placing 3-9 traps per acre (approximately 1,920- 5,760 traps per sq.mi.). Because of the large size of the sites, mass trapping would require placement of 12,000 to 36,000 traps in the sites. This would be logistically difficult and costly to perform. Therefore, this option was not considered for this project. In future projects, it will be evaluated for use.

- **Use of Sterile insect release.**

The FEIS documents the use of sterile insects for elimination of isolated gypsy moth populations. It also documents the obstacles of using this alternative - the limited release period; need to synchronize production of sterile pupae and release into the population; and the limited availability. This treatment alternative is currently not available, and it has not used in recent eradication or slow-the-spread treatment projects. Giving consideration to these obstacles, this alternative was not considered for this project. In future projects, it will be evaluated for use.

2.3 Alternatives Considered in Detail

Alternative 1. NO ACTION. If no action is taken, the gypsy moth would reproduce and populations would increase and begin to defoliate trees in the area. The gypsy moth would spread to surrounding areas and across Illinois. This is not a preferred alternative because damage will become evident sooner than if alternative 2 is selected.

Alternative 2. Btk and Mating Disruption (Preferred Alternative). This alternative provides two options for treating various population levels of the gypsy moth. Two aerial applications of Btk on 12 sites (Table 1) would begin in mid-to-late May and one application of pheromone flakes on 5 sites (Table 1) would occur in late June or early July.

Btk - This option of alternative 2 uses two applications of Btk on 12 sites at a rate of 24 billion international units (BIU's)/acre. Applications would begin when leaf expansion was about 50% and when first-second instar caterpillars are present and feeding. The second application would follow in 7-10 days. Post treatment evaluations consisting of male moth detection trapping will be conducted at all the treatment sites at a trap density of 4 traps per square mile. The applications can meet the project objective of slowing the spread of gypsy moth by eliminating or greatly reducing population levels.

Mating Disruption - The pheromone flakes application option of alternative 2 would occur in late June or early July, just prior to the male gypsy moth flight period. The Disrupt II flakes are applied at a rate of either, 6 grams (a.i) with 2 oz. of sticker per acre or 15 grams (a.i.) with 4 oz. of sticker per acre. The objective of mating disruption is to saturate the treatment area with enough pheromone to confuse the male moths and prevent them from finding and mating with female moths.

Mating disruption is considered specific to gypsy moth and is not known to cause impacts to non-target organism populations, water quality, microclimate, or soil productivity and fertility (FEIS, Vol. II, p. 4-67). The application can meet the objectives of slowing-the-spread of gypsy moth by preventing mating and by eliminating or greatly reducing gypsy moth populations at the sites.

2.4 Comparative Summary of Alternatives

Table 3. Summary of environmental consequences for alternatives by issues.

	Alternative 1	Alternative 2	
	No Action	***Bacillus thuringiensus* Var. *kurstaki* (Btk) Aerial**	**Mating Disruption (Pheromone Flakes) Aerial**
Issue 1 Human Health & Safety	- No risk of an aircraft accident or spill. - No risk of Btk contact with humans. - Gypsy moth outbreaks and associated nuisance impacts on humans would occur sooner.	- Risk of aircraft accident and non-chemical pesticide spills exists. - Very slight risk of human contact with Btk. - Use would delay the effects of gypsy moth outbreaks on humans and the forests/urban forests.	- Risk of an aircraft accident exists. - No known effect on human health. - Use would delay the effects of gypsy moth outbreaks on humans and the forests/urban forests.
Issue 2 Effects on Non-target Organisms & Environ-mental Quality	- No risk from Btk to non-target threatened and endangered species; water quality; forest communities; or to aquatic insects. - Future risks and ecological impacts associated with gypsy moth would occur sooner if this alternative is selected. - Habitat quality degradation from gypsy moth would occur sooner.	- There is a remote risk of impacting pollinators of Mead's Milkweed and Eastern Prairie Fringed Orchid. - Slight risk of encountering Bald Eagles. - Some direct impact on other spring feeding caterpillars that could result in temporary reduction of local populations. - Use of Btk would reduce the long-term indirect impacts on non-targets organisms that feed on caterpillars. - Very remote risk of impacting lepidoptera that are a food sources of threatened and endangered birds. - Delay the impacts of gypsy moth defoliation on habitat and environmental quality.	- No risk to threatened and endangered species. - Use would delay the effects of gypsy moth outbreaks on natural resources. - No risk of impacting pollinators or food sources of threatened or endangered species. - No risk or impact to non-target organisms. - No impact to water quality, microclimate, soil productivity and fertility.

Table 2. Summary of environmental consequences for alternatives by issues (cond't).

	Alternative 1	Alternative 2	
	No Action	***Bacillus thuringiensus* Var. *kurstaki* (Btk) Aerial**	**Mating Disruption (Pheromone Flakes) Aerial**
Issue 3 Economic and Political Impacts	- Regulatory action would be implemented sooner in the counties to prevent spread. - There would be increased funding needs to support implementation of regulatory actions. - Public nuisance factors could lead to increased pressures on governmental bodies.	- Use would delay regulatory action and quarantines. - Use would delay costs of widespread suppression to state and local governments. - Use would result in reduced urban forest impacts and public nuisance factors.	- Use would delay regulatory action and quarantines. - Use would delay costs of widespread suppression to state and local governments. - Use would result in reduced urban forest impacts and public nuisance factors.
Issue 4 Likelihood of Success of the Project	- Project objectives would not be met. - Gypsy moth would not be eliminated or suppressed in treatment sites. - Spread of gypsy moth into adjacent counties would not be slowed.	- Success is probable in areas that are treated. - Slowing-the-Spread of gypsy moth is probable.	- Success is probable in areas that are treated with the flakes. - Slowing-the-Spread of gypsy moth is probable.

3.0 AFFECTED ENVIRONMENT

3.1 Description of the Proposed Treatment Sites

Cook County - Cook County is nearly all urban and includes Chicago. The extreme northwest and southwest areas still have some agricultural lands. Two moderate size rivers run through the county. The Cook County Forest Preserve District manages extensive, forested lands, which contain oaks, hickory, willow, birch, and others. In the intensive urban area, landscaping is a major avocation, with apple, cherry, willow, and oaks species being very popular. The populace is highly mobile and commonly travels to other regions for recreational purposes.

Cal-Sag/CCFPD – Two aerial applications of Btk will be used to treat this 388 acre site. It contains a portion of the Cal-Sag River Channel on the south. The entire site is Cook county Forest Preserve, with oaks, hickory, and willow abundant. The east side contains a cemetery, a church, and a few buildings or residences. Cook County, Lemont Township and the Forest Preserve District of Cook County are the involved local governments. Lemont and Willow Springs are also adjacent to this site.

Calumet City – One aerial application of mating disruption pheromone flakes will be used at this 601 site. It lies in Calumet City. Half of the site is residential with the associated ornamental species. Also, 2 parks, 1 library, and 2 schools are in the treatment block. The rest of the block is Cook County Forest Preserve, which is comprised of a marsh, oak-hickory woods, and a picnic area. Calumet City, the Forest Preserve District of Cook County, a tiny portion of Dolton (on the west), Thornton Township, and Cook County are the concerned local governments.

Palos Park/CCFPD – One aerial application of mating disruption pheromone flakes will be used at this 3,326 acre site. The Cal-Sag River Channel runs through the north edge of the site. A Cook County Forest Preserve comprises most of the block. This Preserve has a winter sports area, upland (oak and pine) woods, and several marshes and a lake. The east-central portion of the site contains a residential portion of Palos Park. The involved local governments are Palos Park, Palos Hills, the Forest Preserve District of Cook County, and perhaps Palos Township.

Wentworth Woods – One aerial application of mating disruption pheromone flakes will be used at this 232 acre site. It lies entirely within Calumet City along the Indiana state-line. Two years of intensive trapping identified the spray block. Most of the site is Cook County Forest Preserve-Wentworth Woods. Within the preserve is a park. Along the south edge and in the center of the treatment area are two residential areas.

DuPage County – DuPage is highly urban, and is second only to Cook County in urban development and population. Some areas in the west and south still support agricultural uses. The Forest Preserve District of DuPage County is very active and manages many green space areas that support oak species. Some of these preserves contain high-quality remnant forests. Many residential subdivisions are also built within oak forest remnants. The Fox River basin to the west is highly wooded with oaks, birch and willow. Landscaping is common and includes many susceptible species. The counties' populace is notably mobile both in household moves and recreational activities.

Argonne – Two aerial applications of Btk will be used to treat this 1,887 acre site. The southwest quarter of this site includes a portion of Argonne National Laboratory. Argonne

National Laboratory is one of the U. S. Department of Energy's largest multiprogram science laboratories. The Forest Preserve District of DuPage County's Waterfall Glen Preserve comprises the central portion of this block. A forested area known as the Palisades lies in the southeast corner, and the remainder is residential areas of Darien, Burr Ridge, and Downers Grove Township. Willow Springs is adjacent to the southeast corner of the spray block. Several ponds, streams and marshes are located in Waterfall Glen Preserve, Argonne NL, and the Palisades. Oaks, hickory, willow, and susceptible ornamentals are common in the site.

Downers Grove – Two aerial applications of Btk will be used to treat this 1,572 acre site. This treatment area is densely residential. It encompasses several schools, Maple Grove Forest Preserve, and four parks. As an older residential, the area is continuously populated with highly valuable oaks and ornamental trees. Most of the site is within the City of Downers Grove. DuPage County, the Forest Preserve District of DuPage County, and Downers Grove Township also govern land within the site.

Lyman Woods – Two aerial applications of Btk will be used to treat this 180 acre site. Lyman Woods is less than 1 mile from the Downers Grove treatment site. The City of Downers Grove, the Forest Preserve District of DuPage County, DuPage County, and York Township are the involved local governing entities. The treatment block includes property of Good Samaritan Hospital, Lyman Woods, and a residential area. Oaks, apple, and cherry are common in this site.

Medinah-Nordic Hills – Two aerial applications of Btk will be used to treat this 678 acre site. The site consists mostly of Medinah Country Club and Nordic Hills Country Club. The west edge of the blocks includes a sliver of residential area and a corner of DuPage County Forest Preserve land. Highly valuable oaks and ornamentals exist throughout the treatment site. Medinah, Itasca, the Forest Preserve District of DuPage County, Bloomingdale Township, and DuPage County are the involved local governments.

Roselle – Two aerial applications of Btk will be used to treat this 683 acre site. Roselle and Bloomingdale residential areas comprise most of the site. Also, Meacham Grove County Forest Preserve comprises a significant portion of this block. One school is within the treatment site. Valuable oaks, willow, and susceptible ornamentals are throughout this block. Creeks and marshes lie within the block. A small lake is adjacent on the east. Roselle, Bloomingdale, Bloomingdale Township, DuPage County are the involved local governments.

West Chicago/Wheaton – One aerial application of mating disruption pheromone flakes will be used at this 17,640 acre site which is in west-central DuPage County. The intent is to reduce the included gypsy moth population so that much smaller follow-up treatments can be made to identifiable hot spots within this large site. This block is a mix of densely urban areas, rural areas, industrial areas, DuPage County Forest Preserves, possibly some natural areas, lakes, ponds, marshes, creeks, and a river. Fermi National Accelerator Laboratory is a few hundred feet west of the site's southwest corner. Valuable gypsy moth hosts are common throughout. West Chicago, Warrenville, Winfield, Wheaton, Carol Stream, Wayne, the Forest Preserve District of DuPage County, Wayne Township, Winfield Township, Milton Township, DuPage County, and the U.S. Department of Energy are the involved government entities.

Kane County -- Kane County has a mix of urban and rural uses. The east one-third of the county, adjacent to the Fox River is highly suburban with scattered agricultural lands. Central and western Kane County is mostly agricultural with rural homes & small developments that are built into many wooded areas. The northeast has a rolling topography of glacial ridges that tend to be

wooded with oak forest remnants. The rest of the county tends to flatten-out into agricultural land with scattered wood lots. The lowlands along the rivers and streams have many bur oak, willows, and river birch. Apple, cherry, and paper birch are popular ornamentals.

Batavia – Two aerial applications of Btk will be used to treat this 386 acre site. The site straddles the Fox River and its islands. Two residential areas of Batavia and an unincorporated residential area are within the block. Parts of Les Arends Forest Preserve and Glenwood Forest Preserve are within this treatment site. Also, parts of a cemetery and a country club are included. Three species of oak and willow are common throughout the site. Susceptible ornamentals are also present. The City of Batavia, Batavia Township, Kane County, and the Forest Preserve District of Kane County are the involved local governments.

Fabyan - Two aerial applications of Btk will be used to treat this 282 acre site. This site also straddles the Fox River and one island. The east side of the river consists of the Fabyan Forest Preserve. A small subdivison of Geneva is on the west side of river. Valuable oaks and ornamentals and willow are common throughout the block. Most of the site is in Geneva or the Kane County Forest Preserve. One small corner of the site is in Batavia. No township involvement is apparent.

McHenry County -- This County has a mix of urban and rural uses. The east half of the county, adjacent to the Fox River is highly developed with scattered agricultural lands. Central and western McHenry County is mostly agricultural with many rural home developments that are built in the wooded areas. The county has a rolling topography of glacial ridges that tend to be wooded with oak forest remnants. The lowlands along the rivers and streams have many willow trees and river birch. Apple, cherry, and paper birch are popular ornamentals.

Menge Road – Two aerial applications of Btk will be used to treat this 85 acre site. The block is intermixed agricultural, rural residential, and wooded. Oaks exist along the roads and the far west side of the site. Some scattered oaks occur in the open fields and residential lots. Susceptible ornamentals occur in the residential yards. Much of the site has intermediately susceptible species. Unincorporated McHenry County, Hartland Township, and Dunham Township are the locally involved governments.

Winnebago County -- Winnebago County is largely rural except for Rockford, Illinois' third largest city. A mosaic of cropland and wooded land span this county. Many rural homes have been built in the woodlands. Oaks dominate much of the remnant upland forests. Willow and river birch are common in the lowlands. Apple, cherry, and paper birch are commonly planted as ornamentals.

Harrison – Two aerial applications of Btk will be used to treat this 83 acre site. The Pecatonica River flows through this block. The site consists of the entire rural community of Harrison, which is at the intersection of State Hwy 75 and Harrison Road. Susceptible ornamentals, oaks and willow are common through out the site. Winnebago County, Harrison Township, and the Village of Harrison (if incorporated) are the concerned local governments.

NW Winnebago – Two aerial applications of Btk will be used to treat this 240 acre site. This site is in a rural area of Winnebago County that is a patch-work of rural homes, agricultural land, and wooded land. Bur and white oak are common in this area. Two intermittent creeks run through the site. Winnebago County and Laona Township are the involved governments.

South Beloit - Two aerial applications of Btk will be used to treat this 379 acre site. This site is adjacent to and south of Beloit, Wisconsin. The Wisconsin Deptartment. of Agricultural has been battling gypsy moth in Beloit for a few years. Most of this block is within the City of South Beloit, and includes residential and commercial areas. A high school, two churches, and the American Legion Park are in this site. The Westside of the block is bounded by the Rock River. Valuable ornamentals, urban oaks, and the river species of birch and willow are common. Winnebago County, Roscoe Township, and the City of South Beloit are the concerned governments.

Roscoe - One aerial application of mating disruption pheromone flakes will be used to treat this 1,169 acre site. It is located ¼ mile east of Roscoe, IL, with the site's west edge along US Hwy 51. A vacation area, with many homes, in conjunction with The Ledges and Clayton Andrews County Forest Preserves comprise the entire spray block. A mixed oak- hickory forest comprises much of this site. Many homes with susceptible ornamentals are within the site. A golf course lies just to the north. A few commercial properties are within. Two streams flow through the site. Winnebago County, Roscoe Township, and possibly the Village of Roscoe are the involved governments.

3.2 Ecology of Affected Environment

The sites proposed for treatment within the cooperative project are very diverse in tree species, density, and age. Many of these forested sites have been significantly modified for human use. The ecology of these sites cannot be described as the "natural" state. Forest stands have been divided into residential lots, and areas within each lot have been cleared for houses, other buildings, lawns, and gardens. Trees and understory vegetation have been removed to construct campgrounds, picnic sites, and other recreation facilities, which have changed the ecology of these sites.

In some instances, non-forested areas have been converted to urban forests. These sites did not originally support a forested ecosystem. The resulting urban forests generally do not support as diverse and complex of an ecosystem as a natural forest. Some recreation sites and many special-use areas are also included in this type of urban forest ecosystem. Other sites proposed for treatment include remnant pre-settlement forests with high biodiversity. Many of these high quality natural areas are being managed to promote biodiversity.

3.3 Threatened and Endangered Species

Prior to beginning a slow-the-spread project, the Forest Service consults with the USDI-FWS as is required under section 7 of the Endangered Species Act of 1973, as amended. Consultation is performed to determine if federally listed threatened or endangered (T&E) species are present in or adjacent to the action area and if they might be jeopardized by the proposed action.

Correspondence regarding this consultation is on file in the USDA-FS, St. Paul Field Office.

The results of consultation with the USDI-F&WS and IL-DNR's Endangered Species Coordinator determine what, if any, adjustments will be made to the proposed project to conserve these species and to minimize or avoid potentially adverse impacts.

The Illinois Department of Natural Resources and the U.S. Fish and Wildlife Service have determined that the eastern prairie-fringed orchid (*Platanthera leucophaea)*, listed under the Endangered Species Act or Illinois Endanger Species Act, may occur in the general vicinity of one Btk treatment block and two pheromone flake treatment blocks in DuPage county. However, it is very unlikely that this listed species occurs within the actual treatment block. The Btk treatment block is over 1 mile away from a known population and in the other two blocks pheromone flakes will be used. Any take of pollinators is remote. The federally and State-listed Bald Eagle (*Haliaeetus leucocephalus*) is known to nest in Winnebago County. We have no information that indicates eagles nesting within or in the vicinity of our target areas. If encountered once treatment work has begun mitigating measures will be taken to avoid disturbing Bald Eagles

A Take Permit was also obtained from the Illinois Nature Preserve Commission. Correspondence is on file in the USDA-FS, St. Paul Field Office.

3.4 Wetlands and Floodplains

Wetlands and floodplains are sensitive environments. Any use of insecticides in these environments must consider the potential impacts on non-target isect species and indirect effects on other species in the food chain. Methods to mitigate any negative impacts have been incorporated into this EA. Specific insecticides were eliminated from consideration for this project due to potential impacts on non-target organisms in aquatic environments (section 2.2). Btk, one of the selected insecticides, does not significantly affect aquatic organisms (USDA1995, Vol. II, P. 4-55).

3.5 Historical and Cultural Resources

The National Historic Preservation Act provides specific guidance for the preservation of prehistoric and historic resources when federal actions may have an adverse impact on these resources. The area proposed for treatment at Argonne National Laboratory includes a Historic District and two archaeological sites that are potentially eligible for listing on the national Register of Historic Places. In Illinois, the State Historic Preservation Officer (SHPO) is informed of the proposed action. The Illinois Historical Preservation Agency has identified that there would be no adverse effects to Illinois' historical properties from implementing the proposed project in 2002. Correspondence is on file in the USDA-FS, St. Paul Field Office.

4.0 ENVIRONMENTAL CONSEQUENCES

This section is the scientific and analytic basis for the comparison of alternatives. It describes the probable consequences (impacts, effects) of each alternative for each issue. Environmental consequences for each issue by alternative combination are summarized in Table 2, above.

4.1 Human Health and Safety (Issue 1).

Alternative 1, NO ACTION
Under this alternative, there would be no cooperative aerial application project; therefore risk of human contact with Btk and pheromone flakes and an aircraft accident during application would not exist. However, future impacts to human health may occur sooner under Alternative 1 than if treatments are used to slow-the-spread of these gypsy moth populations. Gypsy moth outbreaks have been associated with adverse human health effects, including skin lesions, eye irritation, and respiratory reactions. Gypsy moth caterpillars can become a serious nuisance that can cause psychological stress in some individuals (USDA 1995, Vol. II, p. 4-9).

Alternative 2, Btk and Mating Disruption (Preferred Alternative)
Btk - Human exposure to Btk provides little cause for concern about health effects. "On the basis of both the available epidemiology studies as well as the long history of use, no hazard has been identified for members of the general public exposed to Btk formulations" (USDA 1995 Vol. III, p. 4-15). Exposure to Btk may result in temporary eye, skin, and respiratory tract irritation in a few people. Little information is available on groups with special sensitivities, such as allergies or sensitivities to Btk formulations. A detailed analysis of the risks posed to humans by Btk was conducted for the FEIS -- Human Health Risk Assessment (USDA 1995, Vol. III).

In British Columbia, a human health study, after three applications of BTK over 80,000 people, reports no apparent relationship between aggravation of asthma in children and aerial spraying of Foray 48B. Also, no relationship with Btk was found in short-term adult health effects or emergency room visits (HSSC,1999).

In New Zealand, a human health study, after 23 applications of Btk over 80,000 people, found that bacteria that kill insects (Btk) are not infectious or significantly toxic to humans. Some irritant effects have been reported in spray workers and are suspected to be due to inert ingredients. Pre-existing allergies to some inert ingredients or food residue (not the bacteria) is possible. Allergy initiation is not expected from the Btk itself (Jenner Consultants, 1998).

Mating Disruption - The toxicity of insect pheromones to mammals is relatively low and their activity is target-specific. Therefore the EPA requires less rigorous testing of these products than of conventional insecticides. Risk to human health due to exposure to disparlure, the active ingredient in pheromone flakes, is discussed in the FEIS (Vol. II, pp. 4-30 through 4-32). Once absorbed through direct contact, disparlure is very persistent in humans, and individuals exposed to disparlure may attract adult male moths for prolonged periods of time. This persistence is viewed as a nuisance and not a health risk (FEIS-1995, Vol. III, 8-1 through 8-6). In acute toxicity tests, disparlure was not toxic to mammals, birds, or fish (FEIS-1995, Vol. IV, 5-5) therefore no effects to human health are anticipated.
A slight risk of an accident or spill always exists when conducting aerial applications. However, considerable planning and training are done annually to mitigate this concern. A detailed safety plan for the project is prepared annually which outlines all safety and emergency procedures to be used (for a copy of the safety plan, contact either the USDA-FS or IDOA representative listed on the cover of this EA.) The Illinois Cooperative Gypsy Moth Project has aerially treated more than 60 communities on and off since 1976. Most of these treatments were done by the state outside of any cooperative program with the USDA-FS. Since becoming involved with the USDA-FS gypsy moth STS program in 1999 some 11,312 acres have been treated without any reported accidents or spills. Due to this relatively short history in Illinois of being involved with the Federal cooperative program the following information is provided concerning the state of

Michigan, which has been involved with the Federal cooperative program every year since 1984.

The Michigan Cooperative Suppression Project has aerially treated more than 1.8 million acres since 1989. During this time period, there have been five incidents that have occurred while the aircraft were in flight. In two of these incidents the aircraft were able to land without any damage to the aircraft. In two other cases there was damage to the aircraft. There were no serious injuries in either of these incidents, although, one incident resulted in minor back injuries to the pilot. The fifth incident that occurred during the 2000 suppression project resulted in an aircraft crash, a pilot fatality, and a spill. Only one other incident since 1989 resulted in a spill, which occurred at the airport when an emergency dump lever was released spilling the insecticide from the plane's hopper. The spilled Btk was confined to the tarmac and quickly cleaned up with no contamination concerns resulting from the incident.

4.2 Effects on Nontarget Organisms and Environmental Quality (Issue 2).

Alternative 1, NO ACTION
With no treatments in 2002, gypsy moth populations would increase more rapidly and impacts would occur sooner. Defoliation by the gypsy moth will selectively cause mortality of preferred host trees. During outbreaks, forest ecosystems can change due to a reduction of the oak component. An increase of tree species such as maples and ashes, more opportunistic and less desired by gypsy moth, is likely to occur. Oak forests would likely consist of a more mixed composition in the future, though oak would still be a component. Northern and western Illinois forests have significantly lower species diversity than forests in the eastern U.S., eastern Illinois, and southern forests. Northern Illinois also has some fragile oak communities, such as Oak Savannas and the oaks of Lake Michigan Dunes. Although the eventual species composition of these remnant forest communities is difficult to predict, a 50% (or more) loss of the white oak, red oak, and bur oak components may be a realistic estimate. Such a reduction in forest community quality can significantly impact the other community biotic components and the nearby, dependent micro-communities.

Gypsy moth defoliation and subsequent tree mortality can affect nontarget organisms by dramatically changing habitats on a local scale. Heavy defoliation can remove food for other leaf-feeding species, including other caterpillars. However, it can also create new habitat for some species by creating snags and increasing understory plant development by allowing increased light penetration into the under-story in defoliated areas. Impacts on a larger scale (national, regional, or state) are subtle, gradual, and may be noticeable only after many years or decades (USDA 1995, Vol. II, p. 4-74). Short- and long-term changes in nontarget species have been shown for moderate and heavy defoliation (USDA 1995, Vol II, p. 4-47 and 4-50). An Ecological Risk Assessment (USDA 1995, Vol. IV) examined gypsy moth impacts on a wide variety of species (mammals, birds, reptiles, amphibians, fish, insects, mollusks, crustaceans, and other invertebrates). Further discussion of gypsy moth and its impact on forest conditions can be found in the FEIS (USDA 1995, Vol II, p. 4- 39 through 4-43 & 4-74).

Alternative 2, Btk and Mating Disruption (Preferred Alternative)
Btk – Btk can have direct and indirect impacts on non-target organisms. Direct toxicity of Btk is generally limited to certain invertebrates, primarily some species of moths and butterflies. Btk is not toxic to vertebrates, honeybees, parasitic and predatory insects, and most aquatic invertebrates (USDA 1995, Vol. IV, p. 5-1). Btk has a direct adverse impact on caterpillars of

moths and butterflies, but susceptibility varies widely among species. Btk, as used in gypsy moth projects, poses a risk to some spring-feeding caterpillars; however, permanent changes in their populations do not appear likely. An exception may occur in certain habitats that support small isolated populations of a particular species of moth or butterfly that is highly susceptible to Btk (USDA 1995, Vol. II, p. 4-54).

The U.S. Fish and Wildlife Service and IDNR has identified the eastern prairie-fringed orchid (*Platanthera leucophaea*) as an endangered species in Illinois. Even though this species does not occur within the treatment sites, the potential does exist for Btk to subtly impact spring, leaf-feeding lepidoptera pollinators of this species.

Btk may have an indirect effect on some other organisms by reducing food resources such as caterpillars, pupae, or adult moths and butterflies. Any effects on vertebrates due to reduction in food availability are probably subtle, especially for mammals and birds (including the afore mentioned endangered or threatened species) that are very mobile. Populations of some gypsy moth parasites and some general lepidopteran parasites may be temporarily reduced, due to the reduction in host organisms caused by the Btk spray (USDA 1995, Vol. IV, p. 5-7).

Applications of Btk formulations do not increase levels of Btk in soil, and Btk persist for a relatively short time in the environment. Changes in soil productivity and fertility are not likely in the treatment sites, because Btk occurs naturally in soils worldwide. Additional information concerning the effects to soil can be found in Appendix G of the FEIS (USDA 1995, Vol. IV).

Application of Btk is likely to maintain the forest condition in the short-term by eliminating gypsy moth populations in the treatment sites, thus delaying gypsy moth from expanding and causing defoliation. However, in the long-term (5-10 years) gypsy moth will very likely become well established in most treatment sites, even if this alternative is followed.

Mating Disruption - The pheromone in the flake dispenser is specific to gypsy moth and will not have an affect on other insects or organisms including non-targets and threatened & endangered butterflies or moths. Pheromone flakes will not affect food sources of birds or pollinators of plants.

A quantitative assessment of risk from mating disruption was not conducted for the FEIS because of disparlure's low toxicity to vertebrates and specificity to gypsy moth. As used in mating disruption, disparlure is not likely to cause changes in non-target organisms (FEIS, Vol. II, p. 4-67). The toxicity of insect pheromones to mammals is relatively low. In acute toxicity tests, disparlure was not toxic to mammals, birds, or fish (FEIS-1995, Vol. IV, 5-5). At normal application rates, concentration of the pheromone (disparlure) impregnated in the flakes remains active for one season only. No effects on non-target organisms are anticipated from the proposed Disrupt II application.

Most ingredients in the flakes are insoluble in water, so the risk of disparlure leaching into groundwater is minimal. To determine the amount of disparlure that could potentially leach into water, 50 grams of flakes were submerged in 150 ml of water and vigorously agitated for 24

hours. Results indicate that less than 0.04% of the active ingredient (disparlure) contained in the flakes leached into water under these conditions. Disrupt II is applied at a dose of 30.4 grams of active ingredient (disparlure) per acre and 90% of the flakes are intercepted by and adhere to the forest canopy, where they remain until they have released most of the disparlure. Theoretically, if the dose for an entire acre were accidentally applied over open water, only 0.012 grams of active ingredient from the applied dose would leach into the water.

4.3 Economic and Political Impacts of Treatment vs. Non-Treatment (Issue 3).

Alternative 1, NO ACTION
The likely action would be to quarantine Cook, DuPage, Kane, McHenry, and Winnebago Counties. Quarantines would regulate firewood, logs, other timber products, mobile homes, recreational vehicles, ornamental nursery stock, Christmas trees, and outdoor household articles. This would create a financial impact to industries that grow, process, move, or sell these products.

If current gypsy moth populations are not treated, they will continue to reproduce and increase in size. Defoliation would become noticeable in the future, but it is difficult to predict exactly when noticeable defoliation might occur. Requests for federal assistance to suppress gypsy moth would be likely when defoliation occurs. Suppression projects are generally more expensive than eradication projects because much larger areas are treated. The economic impact to state and local government budgets would increase if the agencies responsible for infested areas decide to administer and fund suppression projects.

Following defoliation, financial impacts are likely to occur for recreational related industries such as resorts and campgrounds. Homeowners and private woodland owners might be forced into conducting expensive control activities.

The Illinois Department of Agriculture expects dissatisfaction to be expressed by the citizens of Lake, Cook, DuPage, and McHenry Counties when Gypsy Moth defoliation becomes evident in the Chicago Metro area. Once the impacts become noticeable in the urban area, elected officials from the Villages, Counties, and the U.S. Congress members from Illinois are likely to become involved. DuPage, Cook, Kane, and Winnebago counties have dense urban regions and political pressures will likely occur sooner in those areas.

Alternative 2, Btk and Mating Disruption (Preferred Alternative)
Regulatory action may occur in-the-near future in Cook, DuPage, Kane, McHenry, and Winnebago County because of the risk of movement of gypsy moth through recreational and human movement still exists, even if this alternative were implemented. The survey information indicates continued introduction, and development of gypsy moth in these counties from the infestations in Wisconsin. In the absence of the implementation of this alternative there would be economic impact to industries from the implementation of a regulatory quarantine. Reducing Gypsy Moth populations by slowing their spread will delay the costs of quarantine and suppression. In Kane, McHenry, and Winebago Counties, the plan is to attempt to stop the spread of Gypsy Moth in Illinois at these counties. There would be economic and social benefits to the surrounding counties as well from slowing the spread of gypsy moth. Citizen's dissatisfaction will be delayed, lessening pressures on the elected officials.

4.4 Likelihood of Success of the Project (Issue 4).

Alternative 1, NO ACTION
The proposed Project objectives would not be met with this alternative. Gypsy moth populations would not be significantly reduced or eliminated from the treatment sites. These populations would then serve as a source for increased spread and development within Cook, DuPage, Kane, McHenry, and Winnebago counties as well as into surrounding counties. It is estimated that current gypsy moth populations is Illinois could move through the present counties within 1-3 years and through the state in 5-10 years if it is allowed to develop and spread unabated. That estimate is based on what occurred in the lower peninsula of Michigan, an area that did not follow the slow the spread strategy as outlined in the FEIS,

Alternative 2, Btk and Mating Disruption (Preferred Alternative)
Btk Option - Project success is likely with the implementation of this alternative. Btk (two applications) is effective in eliminating gypsy moth in the treatment sites.

Mating Disruption - Mating disruption using pheromone flakes has demonstrated elimination of gypsy moth in other treatment sites at similar low population levels.

4.5 Unavoidable Adverse Effects

No unavoidable adverse effects were identified for the proposed project.

4.6 Irreversible and Irretrievable Commitments of Resources

"An irreversible commitment of resources results in the permanent loss of nonrenewable resources, such as minerals or cultural resources; resources that are renewable only over long periods of time, such as soil productivity; or extinction of a species. An irretrievable commitment is one in which a resource product or use is lost for a period of time while managing for another." (USDA 1995 Vol 2, p 4-93) Except for alternative 1, there is an irreversible commitment of labor, fossil fuel and money spent on the project. For this project, no irretrievable commitment was identified.

4.7 Other information

Mitigation
The Cooperative Gypsy Moth Project would implement the following safeguards and mitigating measures:

- State government will notify the public approximately one week before starting treatment activities by using news releases via local radio, TV, and newspaper. Additional notice will be made by the placement of signs, 24 to 48 hours before treatment, at the common access points to each spray block.

- Employees of state and federal agencies within the sites will receive information and training on the Btk and pheromone flake treatments to be able to answer questions from the public.

- Notifications will contain information pertinent to the specific treatment, treatment boundaries,

treatment schedule, precautions to be taken by responsible government officials. In addition, the notifications will provide other information that may be helpful to residents as well as suggestions they might observe as a matter of choice.

- Applications will be suspended from 7:00 am to 8:30 am in areas where school children are going to or arriving at school. Every effort will be made not to over spray school busses occupied by school children.

- Aircraft will be calibrated to ensure accurate application of both Btk and the pheromone flakes.

- The applications will be timed to ensure that application occurs during the most susceptible gypsy moth life stage.

- The weather will be continually monitored during treatment to assure accurate deposition of the treatment material and sufficient time for the material to dry on the foliage. Should an unpredicted rainfall occur soon after Btk treatment was completed, the spray plot would be retreated.

- Eastern prairie fringed orchid does not occur in or adjacent to any treatment blocks. Continued vigilance for this species will be exercised.

Monitoring

During the treatments, ground observers and/or aerial observers will monitor the application for accuracy within the block perimeters, for accurate swath separation, and for evidence of drift of spray deposit. Downloading of Differential Global Positioning System (DGPS) information from application aircraft to an operations-base computer will also be conducted to help determine flight line separation, spray-on and spray-off, acreage treated, and altitude during application runs. Post treatment evaluation using pheromone traps at 4 traps per sq. mile grid spacing will be conducted in the summer of 2002. The monitoring will occur within and around all treatment sites.

5.0 LIST OF PREPARERS

James Cavanaugh, Plant and Pesticide Specialist
Division of Natural Resources
Illinois Department of Agriculture, DesPlaines, IL 60016
EA Responsibility: Participated in writing and reviewing the environmental assessment.
Experience: 22 years as a Nursery and Pesticide Regulatory Specialists and 22 years experience in gypsy moth management.
Education: M.S. in Forest Ecology from SIU and a B.S. in Forestry from SIU.

Dwight E. Scarbrough, Entomologist
USDA-FS, Northeastern Area State and Private Forestry,
Forest Health Protection, St. Paul, MN 55108
EA Responsibility: Participated in writing and reviewing the Environmental Assessment and a Biological Assessment. Coordinating informal consultation with US Fish and Wildlife Service, and reviewing the Project Work and Safety plan.
Experience: Employee of USDA-FS since 1997 assigned to St. Paul, MN. Current responsibilities

include various aspects of detection, evaluation, and suppression of defoliators, bark beetles and various other forest insect pests.
Education: M.S. in Forest Entomology from Northern Arizona University and a B.S. in Forest Management from Northern Arizona University.

6.0 LIST OF PERSONS AND AGENCIES CONSULTED

John D. Rogner, Field Supervisor, USDI, Fish and Wildlife Service, 1000 Hart Rd., Barrington, IL 60010. This individual was consulted concerning Federally Endangered species.

Keith Shank, Project Manager, Endangered Species Consultation Program, IDNR, 524 South Second St., Springfield, IL 62701. This individual was consulted concerning Illinois Threatened and Endangered species.

Donna Leonard, Entomologist, USDA Forest Service, Forest Health Protection, P.O. Box 2680, Asheville, NC 28802. This individual was contacted for consultation on mating disruption, the use of B.t.k., treatment blocks, and aerial application.

Cody Wright, Illinois Historical Preservation Agency, 1 Old State Capitol Plaza, Springfield, IL 62701. This individual was consulted concerning Historical Sites.

Michael Conner, Group Leader, USDA, FS,FHP, 1992 Folwell Ave., St. Paul, MN 55108. This individual was consulted concerning aerial application, treatment blocks, B.t.k., Disrupt II, and Environmental Assessments.

Dee Dee Sellers, USDA, FS, FHP, 122 North River Rd., Bridgewater, VA 22812. This individual was consulted concerning the use and application of pheromone flakes.

7.0 REFERENCES CITED

Jenner Consultants Ltd. 1998. Report to the Ministry: Clarification of Issues Raised in "Our Case Against Moth Spraying". Crown Copyright(Ministry of Forestry, New Zealand); 129p.

HSSC. 1999. Human Health Surveillance During the Aerial Spraying for Control of North American Gypsy Moth on Southern Vancouver Island, British Columbia. Capital Health Region Office of the Medical Health Officer; 36p.

Kreutzweiser, David P.; Capell, Scott S.; Thomas, David R.; Wainio-Keizer, Kerrie L. 1993. Effects of Btk on aquatic microbial activity, detrital decomposition, and invertebrate communities. NAPIAP Proj. NA-25. Sault Ste. Marie, Ontario: Forestry Canada, Forest Pest Management Institute.

National Research Council. 1983. Risk assessment in the Federal government: managing the process. Washington, DC: National Academy Press; 176 p. +app.

USDA. 1995. Gypsy Moth Management in the United States: a cooperative approach, Final Environmental Impact Statement, Vols. I-V. USDA-Forest Service and USDA-APHIS.

USDA. 1996. Gypsy Moth Management in the United States: a cooperative approach. Record of Decision. USDA-Forest Service and USDA-APHIS.

Reardon, Richard C., et al, 1998. Using Mating Disruption to Manage Gypsy Moth: A Review. USFS, FHTET-98-01.

APPENDIX A

IDENTIFICATION OF LOCAL ISSUES, CONCERNS, QUESTIONS AND COMMENTS MADE AT THE PUBLIC MEETINGS (Categorized by Issues)

Issue 1. Human Health and Safety

What precautions should we take when you spray with Btk?
How will you handle schools and spraying?
What are the health effects on people and children?
When you spray, how long before we can come out?

Issue 2. Effects on Non-Target Organisms and Environmental Quality.

What are the health effects on animals and pets?
How does the spray affect caterpillars?
Will Btk kill large caterpillars?
What plants will Btk affect?
How will my garden be affected?
What other insects will we take out, name them?
Gypchek is much safer to resident butterflies and moths, why will you not use it?
What other kinds of trees are affected?

Issue 3. Economic and Political Impacts of Treatment vs. Non-Treatment.

Why haven't I heard of gypsy moth before?
What help will there be for us?
What is the value of the 3rd spray to a homeowner Association?
How can we exert pressure to get more done?
What is a quarantine?
If I spray and my neighbor doesn't, what will happen?
If you had the money, would you do a third application?

Issue 4. Likelihood of Project Success.

Will gypsy moth go away on it's own?
Will we have to live with gypsy moth and how do we?

Other Concerns and Issues

These questions and concerns fell into the following general areas: gypsy moth biology, trapping and survey methods, and the administrative, operational, and technical aspects of the cooperative gypsy moth project in Illinois.

Has anyone found egg masses in Lyman Woods?
Why are there no predators or so few predators?
How does BT kill caterpillars, do they eat it or what?
What can an individual do to help?
Is there special assistance for elderly people?
Should I do anything as a homeowner?
Does keeping trees healthy help?
How do local tree companies know what to do?
Why did Morton Arboretum Opt out this year?
Why is GM so bad here and not in Europe?
Do gypsy moth caterpillars come down the tree every day?
Are traps or burlap more affective?
Where do we get burlap?
When do we spray on our own?
Will the mild winter affect gypsy moth?
Will pets be affected by caterpillar fecal material?
Is gypsy moth like armyworm up north?
When will the applications be done during the day?
What can we do individually about gypsy moth?
What do we do with pruned branches?
Why aren't you spraying between the two blocks?
Is there any way to tell if my property gets sprayed?
Are there any predators of gypsy moth, and what are they?
What does Btk stand for?
Do you have anything new on Oak Wilt disease?
Will Btk damage car paint?
Is ground spraying this year overkill?
What is spraying form the ground?
When do gypsy moths lay their eggs?
Is there pheromone in the traps?
How does gypsy moth kill a tree?
Are there any systemic products that will work on gypsy moth?
Are we working in conjunction with other states?
What can a homeowner do about gypsy moth?
What is the spacing between sprays of Btk?
How do we use soybean oil?

APPENDIX B

MAPS OF PROPOSED TREATMENT SITES