



Department of Energy

Argonne Site Office
9800 South Cass Avenue
Argonne, Illinois 60439

JUN 09 2014

Dr. Peter B. Littlewood
Director, Argonne National Laboratory
President, UChicago Argonne, LLC
9700 South Cass Avenue
Argonne, IL 60439

Dear Dr. Littlewood:

SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DETERMINATION FOR ARGONNE NATIONAL LABORATORY (ARGONNE)

The Argonne Site Office (ASO) has approved the following as a categorical exclusion (CX) under Appendix B (to 10 CFR Part 1021, Subpart D, Integrated DOE NEPA Implementing Procedures, December 1996), Category B 1.3 "Routine maintenance activities and custodial services for localized vegetation and pest control among others" applicable to:

- U. S. Department of Agriculture Forest Service-Slow the Spread of Gypsy Moth (ASO-CX-304)

Therefore, no further NEPA review is required. However, if any modification or an expansion of the scope is made to the above project, additional NEPA review will be necessary.

Enclosed please find a copy of the approved Environmental Review Form (ERF) for the project.

If you have any questions, please contact Kaushik Joshi of my staff at (630) 252-4226.

Sincerely,

Joanna M. Livengood
Manager

Enclosure:
As Stated

cc: J. Stauber, ANL
M. Finder, ANL
C. Sullivan, ANL, w/encl.
K. Joshi, ASO, w/encl.
M. McKown, SC-CH, w/encl.
P. Siebach, SC-CH, w/encl.



Environmental Review Form for Argonne National Laboratory

Project/Activity Title: The US Department of Agriculture Forest Service -Slow the Spread of Gypsy Moth

ASO NEPA Tracking No. 1872 ASO-CX-304 **Type of Funding:** _____

B&R Code _____

Identifying number: 01418 **WFO proposal #** _____ **CRADA proposal #** _____

Work Project # _____ **ANL accounting # (item 3a in Field Work Proposal)** _____

Other (explain) _____

Project Manager: Casey Sullivan **Signature:**  **Date:** 05/22/14

NEPA Owner: Michael P. Finder **Signature:**  **Date:** 5/22/2014

ANL NEPA Reviewer: Joel Stauber **Signature:**  **Date:** 5/22/14

I. **Description of Proposed Action:** The United States Department of Agriculture Forest Service is conducting a gypsy moth control effort in the region including the Argonne Site. The control action will release a pheromone (insect attractant) to disrupt the gypsy moth mating behavior. Attached is a copy of the Forest Service Environmental Assessment for general reference.

II. **Description of Affected Environment:** The action will release a pheromone into the wooded areas of the Argonne site. The pheromone attracts only male gypsy moths. The carrier is a small insert plastic pellet with a sticking agent.

III. **Potential Environmental Effects:** (Attach explanation for each "yes" response. See Instructions for Completing Environmental Review Form)

A. Complete Section A for all projects.

1. Project evaluated for Pollution Prevention and Waste Minimization opportunities and details provided under items 2, 4, 6, 7, 8, 16, and 20 below, as applicable Yes No

2. Air Pollutant Emissions Yes No

A small aircraft will release GHG and typical internal combustion engine emissions.

3. Noise Yes X No
- A low flying aircraft will create noise that may be heard by nearby residents.
4. Chemical/Oil Storage/Use Yes No X
5. Pesticide Use Yes No X
- The pesticide is a pheromone - a sexual attractant, that otherwise does not affect vegetation or other wildlife.
6. Polychlorinated Biphenyls (PCBs) Yes No X
7. Biohazards Yes No X
8. Effluent/Wastewater (If yes, see question #12 and contact Yes No X
- Gregg Kulma (FMS-SEP) at 2-9147 or gkulma@anl.gov
9. Waste Management
- a) Construction or Demolition Waste Yes No X
- b) Hazardous Waste Yes No X
- c) Radioactive Mixed Waste Yes No X
- d) Radioactive Waste Yes No X
- e) PCB or Asbestos Waste Yes No X
- f) Biological Waste Yes No X
- g) No Path to Disposal Waste Yes No X
- h) Nano-material Waste Yes No X
10. Radiation Yes No X
11. Threatened Violation of ES&H Regulations or Permit Requirements Yes No X
12. New or Modified Federal or State Permits Yes No X
13. Siting, Construction, or Major Modification of Facility to Recover, Treat, Store, or Dispose of Waste Yes No X

14. Public Controversy Yes No

The Argonne Child Care Center was contacted and had no concerns about the proposed application (The Child Care Center and adjacent outdoor play areas are excluded from the aerial application area.)

15. Historic Structures and Objects Yes No

16. Disturbance of Pre-existing Contamination Yes No

17. Energy Efficiency, Resource Conserving,
and Sustainable Design Features Yes No

B. For projects that will occur outdoors, complete Section B as well as Section A.

18. Threatened or Endangered Species, Critical Habitats, and/or
other Protected Species Yes No

19. Wetlands Yes No

20. Floodplain Yes No

21. Landscaping Yes No

22. Navigable Air Space Yes No

Argonne Nuclear Waste Management is finalizing an agreement with the ASO to allow Forest Service fly-overs in designated areas and to avoid restricted zones.

23. Clearing or Excavation Yes No

24. Archaeological Resources Yes No

25. Underground Injection Yes No

26. Underground Storage Tanks Yes No

27. Public Utilities or Services Yes No

28. Depletion of a Non-Renewable Resource Yes No

C. For projects occurring outside of ANL complete Section C as well as Sections A and B.

29. Prime, Unique, or Locally Important Farmland Yes No

30. Special Sources of Groundwater (such as sole source aquifer) Yes No

- 31. Coastal Zones Yes No
- 32. Areas with Special National Designations (such as National Forests, Parks, or Trails) Yes No
- 33. Action of a State Agency in a State with NEPA-type Law Yes No
- 34. Class I Air Quality Control Region Yes No

IV. Subpart D Determination: (to be completed by DOE/ASO)

Are there any extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal? Yes No

Is the project connected to other actions with potentially significant impacts or related to other proposed action with cumulatively significant impacts? Yes No

If yes, is a categorical exclusion determination precluded by 40 CFR 1506.1 or 10 CFR 1021.211? Yes No

Can the project or activity be categorically excluded from preparation of an Environment Assessment or Environmental Impact Statement under Subpart D of the DOE NEPA Regulations? Yes No

If yes, indicate the class or classes of action from Appendix A or B of Subpart D under which the project may be excluded. APPENDIX B, B1.3 ROUTINE MAINTENANCE ACTIVITIES AND CUSTODIAL SERVICES FOR LOCALIZED VEGETATION AND

If no, indicate the NEPA recommendation and class(es) of action from Appendix C or D to Subpart D to Part 1021 of 10 CFR. PEST CONTROL, AMONG OTHERS.

ASO NEPA Coordinator Review: Kaushik Joshi

Signature: 

Date: 6-6-2014

ASO NCO Approval of CX Determination:

The preceding pages are a record of documentation that an action may be categorically excluded from further NEPA review under DOE NEPA Regulation 10 CFR Part 1021.400. I have determined that the proposed action meets the requirements for the Categorical Exclusion identified above.

Signature: 

Date: 6/6/14

Peter R. Siebach
Acting Argonne Site Office NCO

ASO NCO EA or EIS Recommendation: NOT APPLICABLE

Class of Action: _____

Signature: _____

Date: _____

Peter R. Siebach
Acting Argonne Site Office NCO

Concurrence with EA or EIS Recommendation:

CH GLD: _____

Signature: _____

Date: _____

ASO Manager Approval of EA or EIS Recommendation: NOT APPLICABLE

An EA EIS shall be prepared for the proposed _____ and

_____ shall serve as the document manager

Signature: _____

Date: _____

Dr. Joanna M. Livengood
Manager

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Seventh block of faint, illegible text.

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Department of Energy

Argonne Site Office
9800 South Cass Avenue
Argonne, Illinois 60439

28 NOV 2008

Dr. Robert Rosner
Director, Argonne National Laboratory
President, UChicago Argonne, LLC
9700 South Cass Avenue
Argonne, Illinois 60439

Dear Dr. Rosner:

**SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DETERMINATION FOR
ARGONNE NATIONAL LABORATORY (ANL)**

The Argonne Site Office (ASO) has approved the following Environmental Review Form (ERF) as a site-wide generic categorical exclusion (CX) under the category of B.1.3, custodial services for buildings, structures, infrastructures including localized vegetation/soil erosion and stabilization controls.

- Habitat maintenance activities at ANL (ASO-CX-232)

This site-wide generic CX updates and replaces the previous version, ARG-CX-115. Enclosed please find a copy of the approved ERF. If you have any questions, please contact me or have your staff contact Ken Chiu at extension 2-2376.

Sincerely,

A handwritten signature in black ink, appearing to read "Ronald J. Lutha".

Ronald J. Lutha
Site Manager

Enclosure:
As Stated

cc: M. Kamiya, ANL/ESH-QA, 200, w/encl.
C. Sullivan, ANL/FMS, 46, w/encl.
P. Rash, ANL/FMS, 214, w/encl.

Environmental Review Form for Argonne National Laboratory

Click on the blue question marks (?) for instructions, contacts, and additional information on specific line items.

(?)Project/Activity Title:

Site-wide Categorical Exclusion: Habitat Maintenance Activities in Undeveloped Areas at Argonne National Laboratory

(?)ASO NEPA Tracking No. ASO - CX - 132 **(?)Type of Funding:** Operating
B&R Code _____

(?)Identifying number: ERF-0918 WFO proposal # _____ CRADA proposal # _____
 Work Project # N/A ANL accounting # (item 3a in Field Work Proposal) _____
 Other (explain) ARG-CX-115

(?)Project Manager: Casey J. Sullivan Signature: [Signature] Date: 11/06/08

(?)NEPA Owner: Philip C. Rash Signature: [Signature] Date: 11/6/08

ANL NEPA Reviewer: M. A. Kamiya Signature: [Signature] Date: 11/06/08

(?)Description of Proposed Action:

The Department of Energy (DOE) and Argonne National Laboratory (Argonne) are committed to implementing environmentally and economically beneficial landscape practices at Argonne. Executive Order 13112 covers invasive species and DOE Order 450.1A, Environmental Protection Program, requires an Environmental Management System which has site-specific goals and targets including land management. DOE and Argonne have also joined the Chicago Wilderness effort to preserve and restore biodiversity in the Chicago region.

Argonne will conduct habitat maintenance activities on the Argonne site to protect and enhance regional biodiversity, improve water quality in area streams and ponds, and stabilize soil and reduce erosion by conducting the activities described below. Habitats to be managed include woodlands, savannas (i.e., open woodlands), prairies, old fields, wetlands, forested wetlands, and streambanks.

Habitat maintenance activities will include targeted removal and control of non-native and invasive plants and planting regionally native plant species. The methods used will include selective mowing, hand clearing, cutting and herbicide use, and/or controlled burning. All management activities will be conducted in accordance with the Illinois Nature Preserve Commission Vegetation Management Manual, the Chicago Wilderness Biodiversity Plan or other published guidelines for the best available procedures for habitat restoration. The Argonne National Laboratory Land Management and Habitat Restoration Plan will be used to implement the management strategy.

All wetland work is covered under the Environmental Assessment for Wetlands Management on the Argonne National Laboratory – East Site, DOE/EA-1387 (September 2001).

RESTRICTIONS:

No ground disturbance activities will occur near archaeological sites that are eligible or potentially eligible for listing on the National Register of Historic Places.

No soil disturbance will occur unless there is an approved Erosion Control Plan prior to starting work.

No debris shall be left unmanaged from any work. All debris shall be recycled where possible. Wood from trees may be chipped and reused as mulch. Trees and shrubs may be cut and dropped if it is managed for added habitat diversity or if coordinated with prescribed burns or burn piles. If the material is not managed it will be removed for disposal. Standard debris from seed bags and equipment operation shall be disposed at an EPA approved landfill.

All wetland and floodplain actions will be reviewed and approved by DOE or the US Army Corps of Engineers as appropriate prior to starting any work. If a permit is required, a separate ERF to ASO would be required.

No work shall be done in known locations or habitats of threatened or endangered species. A separate ERF would be required.

I. (?)Description of Affected Environment:

Approximately 700 acres of the Argonne site include deciduous and coniferous woodlands, oak savannas, old fields, tall-grass prairies, marshes, forested wetlands, streams, and ponds. These areas occur as interspersed parcels across the entire site and have been maintained in a fairly natural state to serve as buffers, provide visual interest, and to provide opportunities for outdoor recreation and ecological research. Many of the woodland and savanna areas are overgrown with shrubby native and non-native species such as common buckthorn, oriental bittersweet, honeysuckle, multiflora rose, and gray dogwood. Prairies and old field areas contain an abundance of native and non-native shrubby species as well as crown vetch and alien grasses. Wetlands contain an abundance of weedy native and non-native species such as reed canary grass, cattails, common reed, and purple loosestrife. Streambank areas have been invaded by common buckthorn and honeysuckle, which has reduced ground cover plants and caused severe erosion. Habitat management activities would remove undesirable vegetation and restore natural processes to increase biodiversity. This work will also improve the environment.

II. (?)Potential Environmental Effects: (Attach explanation for each "yes" response. See Instructions for Completing Environmental Review Form)

A. Complete Section A for all projects.

1. (?)Project evaluated for Pollution Prevention and Waste Minimization opportunities and details provided under items 2, 4, 6, 7, 8, 16, and 20 below, as applicable. Yes No
2. (?)Air Pollutant Emissions Burning activities will be in accordance with the Open Burning Permit issued by the IEPA. Yes No
3. (?)Noise Most activities will not exceed OSHA decibel limits. When the limits are expected to exceed the industry limits, proper and appropriate hearing protection will be required. Yes No

4. (?) Chemical Storage/Use Yes X No
 See pesticide use below.
5. (?) Pesticide Use Yes X No
 Herbicides such as Garlon and Roundup will be applied by certified applicators. Other pesticides and herbicides approved by the EPA for grounds maintenance activities may be used by certified applicators. Only the minimal amounts needed to accomplish the desired task will be applied. In general, ultra low pressure, large droplet hand sprayers, or wick applicators will be used to minimize herbicide use.
6. (?) Polychlorinated Biphenyls (PCBs) Yes No X
7. (?) Biohazards Yes No X
8. (?) Liquid Effluent (wastewater) Yes No X
9. (?) Waste Management
- a) Construction or Demolition Waste Yes X No
 Boxes and packages shall be properly disposed of at an approved landfill. All other construction debris may be recycled on the Argonne site or disposed at an approved landfill.
- b) Hazardous Waste Yes No X
- c) Radioactive Mixed Waste Yes No X
- d) Radioactive Waste Yes No X
- e) PCB or Asbestos Waste Yes No X
- f) Biological Waste Yes No X
- g) No Path to Disposal Waste Yes No X
- h) Nano-material Waste Yes No X
10. (?) Radiation Yes No X
11. (?) Threatened Violation of ES&H Regulations or Permit Requirements Yes No X
12. (?) New or Modified Federal or State Permits Yes No X
13. (?) Siting, Construction, or Major Modification of Facility to Recover, Treat, Store, or Dispose of Waste Yes No X
14. (?) Public Controversy Yes X No
 Site workers may be concerned about brush clearing and other habitat restoration activities. Argonne employees will be educated about the benefits of these activities through signs or articles in the Argonne News, or by other means.

In addition, the DuPage County Forest Preserve will be coordinated with and informed about the planned actions at the Laboratory.

15. (?) Historic Structures and Objects Yes No X
16. (?) Disturbance of Pre-existing Contamination Yes No X

17. (?)Energy Efficiency, Resource Conserving, and Sustainable Design Features Yes X No

B. For projects that will occur outdoors, complete Section B as well as Section A.

18. (?)Threatened or Endangered Species, Critical Habitats, and/or Although there are no know T&E species this work would improve habitat quantity and quality. Any newly discovered T&E species would be reported to DOE-ASO. Yes No X

19. (?)Wetlands Burning, brush clearing, and planting activities will be conducted in wetlands. No excavation or permanent water level disturbances will be conducted. Some temporary lowering of water levels may be done to facilitate vegetation and habitat management. No soil or fill will be deposited in wetlands unless allowed by the US Army Corps of Engineers and the DOE-ASO. Yes X No

20. (?)Floodplain Burning, brush clearing, and planting will be conducted in floodplains. No excavation or flow disturbances will occur. Grounds maintenance activities will restore and preserve natural and beneficial values served by floodplains. No soil or fill will be deposited in floodplains unless approved by the US Army Corps of Engineers and the DOE-ASO. Yes X No

21. (?)Landscaping Landscaping activities will be performed by the Ground Department and by contractors. The activities include planting weeding, herbiciding, watering, and gardening. Yes X No

22. (?)Navigable Air Space Yes No X

23. (?)Clearing or Excavation Non-native and invasive shrubby vegetation and trees will be cleared without disturbing soil in order to increase ground-level vegetation. This vegetation may be cleared or left on the site based on the need and habitat condition. Old-field areas may be tilled in order to plant prairie species. Yes X No

24. (?)Archaeological Resources Yes No X

25. (?)Underground Injection Yes No X

26. (?)Underground Storage Tanks Yes No X

27. (?)Public Utilities or Services Yes No X

28. (?)Depletion of a Non-Renewable Resource Yes No X

C. For projects occurring outside of ANL complete Section C as well as Sections A and B.

29. (?)Prime, Unique, or Locally Important Farmland Yes No

30. (?)Special Sources of Groundwater (such as sole source aquifer) Yes No

31. (?)Coastal Zones Yes No

32. (7) Areas with Special National Designations (such as National Forests, Parks, or Trails)

Yes ___ No ___

33. (7) Action of a State Agency in a State with NEPA-type Law

Yes ___ No ___

34. (7) Class I Air Quality Control Region

Yes ___ No

III. (7) Subpart D Determination: (to be completed by DOE/ASO)

Are there any extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal?

Yes ___ No

Is the project connected to other actions with potentially significant impacts or related to other proposed action with cumulatively significant impacts?

Yes ___ No

If yes, is a categorical exclusion determination precluded by 40 CFR 1506.1 or 10 CFR 1021.211?

Yes ___ No ___

Can the project or activity be categorically excluded from preparation of an Environment Assessment or Environmental Impact Statement under Subpart D of the DOE NEPA Regulations?

Yes No ___

If yes, indicate the class or classes of action from Appendix A or B of Subpart D under which the project may be excluded. *B.1.3. Routine maintenance/maintenance services for buildings, structures, infrastructures, including localized vegetation/soil erosion and stabilization controls*

If no, indicate the NEPA recommendation and class(es) of action from Appendix C or D to Subpart D to Part 1021 of 10 CFR.

ASO NEPA Coordinator Review: Ken Chiu

Signature: *Ken Chiu*

Date: 11/14/08

ASO NCO Approval of CX Determination:

The preceding pages are a record of documentation that an action may be categorically excluded from further NEPA review under DOE NEPA Regulation 10 CFR Part 1021.400. I have determined that the proposed action meets the requirements for the Categorical Exclusion identified above.

Signature: *Donna L. Green*

Donna L. Green
Argonne Site Office NCO

Date: 11/24/08

ASO NCO EA or EIS Recommendation:

N.A.

Class of Action: _____

ASO NCO: Donna L. Green

Signature: _____

Date: _____

Concurrence with EA or EIS Recommendation:

N.A.

CH-GLD: _____

Signature: _____

Date: _____

ASO Manager Approval of EA or EIS Recommendation:

An _____ EA _____ EIS shall be prepared for the proposed _____ and
_____ shall serve as the document manager.

Signature: _____

Date: _____

Ronald J. Lutha
Site Manager

ENVIRONMENTAL ASSESSMENT

Illinois Cooperative Gypsy Moth
Slow-The-Spread Project,
2014

Illinois Department of Agriculture
United States Department of Agriculture - Forest Service



For information or copies of this document, please contact:

Nancy Johnson (Williams)
Illinois Department of Agriculture, Division of Natural Resources, Bureau of Environmental Programs
2280 Bethany Road, Suite B, De Kalb, IL 60115. nancy.johnson@illinois.gov

OR

John F. Kyhl
USDA Forest Service, Northeastern Area, State & Private Forestry

1992 Folwell Ave., St. Paul, MN 55108. jkyhl@fs.fed.us

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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, Northeastern Area, State and Private Forestry, Forest Health Protection (USFS) to treat gypsy moth, *Lymantria dispar* (L.), (Lepidoptera: Lymantriidae), populations at 9 locations in 9 northern Illinois counties (Table 1, maps in Appendix A). Gypsy moth populations proposed for treatment cover approximately 35,125 acres.

Table 1. Proposed aerial treatment sites, acres, products, and application rates for the Cooperative Gypsy Moth Slow-the-Spread Project in Illinois 2014.

| Proposed Gypsy Moth Treatments in Northeastern Illinois 2014 | | | | | |
|--|-------------------------------|---------------|-----------------|------------|------|
| Block Name | County | Polygon Acres | Treatment Acres | Product | Dose |
| IL Aurora South 1 | Kane, Kendall | 1584 | 1459 | Disrupt II | 6g |
| IL Geneva 1 | Kane, DuPage, Cook | 8471 | 5549 | Disrupt II | 6g |
| IL Joliet 1 | Will | 260 | 260 | Disrupt II | 15g |
| IL Romeoville 1 ¹ | DuPage, Will, Cook | 5434 | 5434 | Disrupt II | 15g |
| IL West Chicago 1 | DuPage, Cook | 5443 | 4746 | Disrupt II | 6g |
| IL West Chicago 3 | DuPage | 3683 | 3434 | Disrupt II | 15g |
| IL Caledonia 1 | Boone, Winnebago | 3584 | 1820 | Disrupt II | 6g |
| IL Freeport East 1 | Stephenson | 3785 | 1300 | Disrupt II | 6g |
| IL LaSalle 1 | LaSalle | 2881 | 1909 | Disrupt II | 6g |
| TREATMENT TOTALS | 9 blocks in 9 Counties | 35125 | 25911 | | |

¹ contains habitat for Hines Emerald Dragonfly and Argonne National Laboratory lands. Treatment area may be reduced for mitigation or other requirements, depending on consultation.

The preferred alternative for Illinois in 2014 is Alternative 2: to treat all sites with one application of a gypsy moth pheromone based mating disruptant in June or July approximately 2 weeks before male moth emergence (Table 1). All areas proposed for treatment are analyzed in this Environmental Assessment (EA), and all state and privately owned property will be contained in a single decision document that accompanies it. Approximately 1500 acres of the proposed treatment areas are within the property boundaries of the Argonne National Laboratory, managed by the US Department of Energy. The Argonne National Lab is expected to accept this environmental assessment and either write their own decision documents or claim categorical exclusion. If the environmental review process is not completed by the commencement of treatment activities, or if the treatments are not approved, the federal portion of this block may be dropped, but the non-federal remainders will be treated. Further, due to rules governing flights over the nuclear facilities at Argonne National Lab, this treatment area may be further reduced in size.

This proposed action does not include privately-hired gypsy moth suppression-type work that may occur in the greater Chicago area. Individuals and local governmental entities may contract with private applicators for gypsy moth suppression treatments from the air or from the ground. Since the State of Illinois has no cooperative gypsy

moth suppression program and gets no funding for suppression work from the USFS, all privately hired suppression work is outside the scope of USFS, IDOA, and IL DNR programs. There is no reporting requirement of this work, and as a result, the locations and acreage treated are not likely to be known. It is our belief that if this type of work occurs at all, it will be small in scale (given relatively low, but spotty gypsy moth populations throughout the Chicago area) due to the difficulty in organizing private treatments in residential areas.

1.2 Project Objective

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

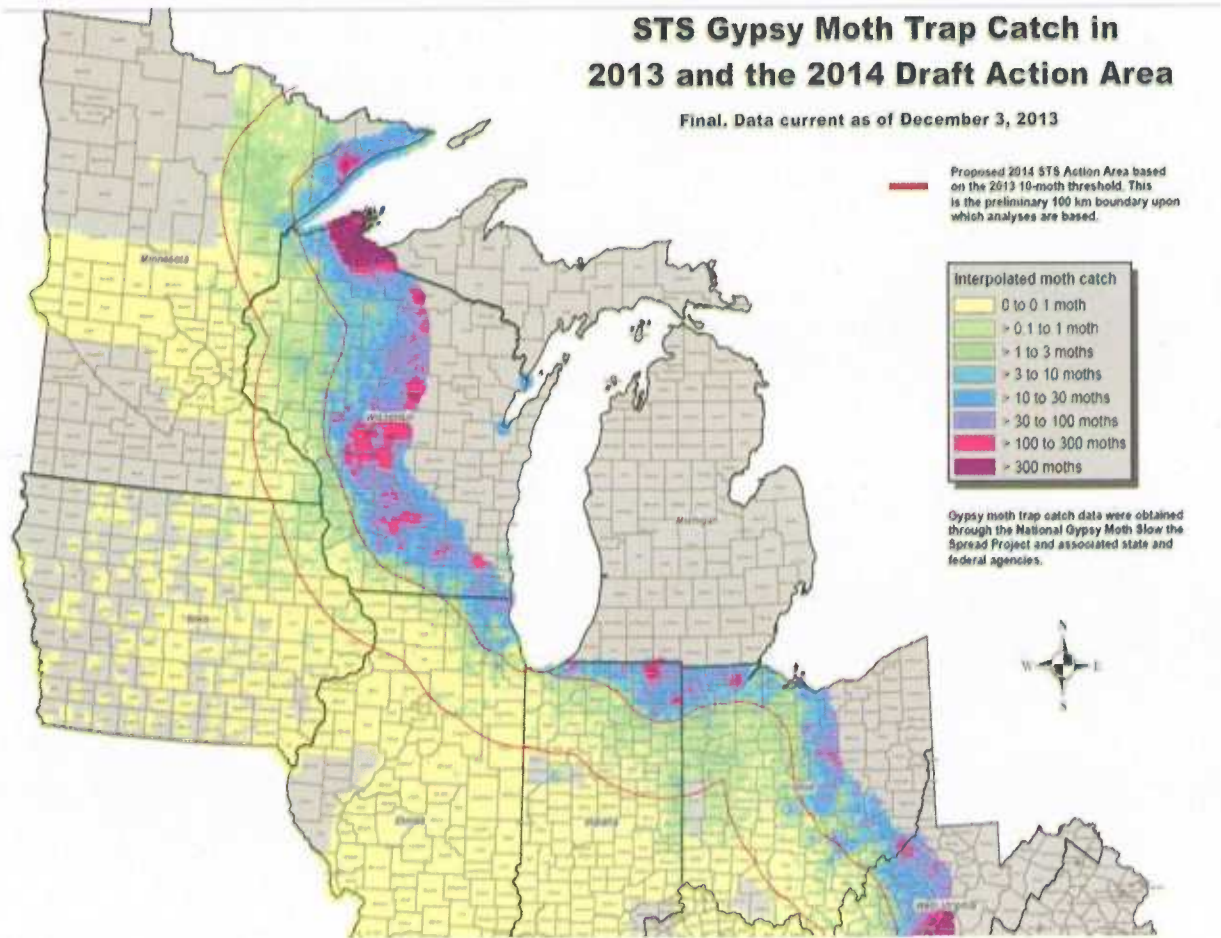


Figure 1. Slow the Spread action zone for 2014, based on 2013 data. Darker (blue) colors indicate higher male moth catches.

1.3 Need for Action

The gypsy moth was accidentally introduced into Massachusetts in 1869. Since that time, it has steadily expanded its range westward and southward, and is now established in about one-third of the potentially susceptible habitat in the United States (Figure 1). It has become one of the most destructive forest

insects in North America. Gypsy moth caterpillars feed on the leaves of a wide variety of trees and shrubs. In the Lake States and the Midwest, highly preferred hosts include oaks, aspens, willows, apple, basswood, and birch. Much of Illinois' forests are dominated by oak, which is the preferred host of the gypsy moth. When high population levels exist, their host preference can also include conifers. This exotic species is not reliably controlled by native parasites and predators anywhere in North America.

Many groups will be affected if gypsy moths were broadly established in Illinois, and all will benefit from the delay. Some of those groups include forest managers (ranging from small woodlot owners to government agencies that manage vast acreages), tree and plant nurseries, Christmas tree producers, wood products industries (e.g., mills), municipalities (towns, counties, etc.) and the tourism industry (e.g., campgrounds, parks, etc.). All of these groups will have time to plan for the effects of gypsy moth. Forest managers will have time to plan and complete silvicultural work, such as thinning and harvests, and plan new plantings with the preferences and effects of gypsy moth in mind. Campgrounds and other recreational areas (e.g., parks, hiking areas) will also benefit from more time to create management plans to limit damage.

The plant nursery, Christmas tree, and wood products industries will have time to train staff and comply with their industry specific quarantine regulations involved in moving products from gypsy moth infested to non-infested areas. If gypsy moth becomes well established in a county, regulatory activity (i.e. quarantine restrictions) would occur. Illinois' nursery industry, which covers approximately 50,000 acres, and the raw wood products industry would be severely impacted by quarantine regulations. Household moves from quarantined areas would also be regulated.

Given the many benefits of delaying the establishment of gypsy moth, the Slow-the-Spread (STS) program was developed to pursue this goal. The STS program is a multi-state, nationwide program that endeavors to slow the spread of the gypsy moth to 8-10 km per year, down from the historical measured rate of spread of 21 km per year (Liebhold et al., 1992). The main benefits of slowing the spread of gypsy moth are delaying infestations and the cost savings that go along with the delay. Much of the benefit of the STS work in Illinois will be felt elsewhere in Illinois as well as in neighboring states of Iowa and Missouri. Illinois is particularly interested in preventing the gypsy moth from spreading through the Illinois, Mississippi, Wabash, and Ohio River systems into the contiguous, oak dominated forests of Southern Illinois. Directly adjacent to these forests are the valuable oak resources of the Missouri Ozarks. Illinois has had markedly lower gypsy moth populations for much longer than originally anticipated due to the STS program. This is attributed to extensive STS work in Ohio, Indiana, Southern Wisconsin, and northeastern Illinois over the last 10 years. A recent description of the STS program can be reviewed at: http://www.gmsts.org/fdocs/STS_Brief_2012.pdf 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 through this link: <http://skynet.ento.vt.edu/da/da.htm> and in Tobin and Blackburn (2007). Based upon STS protocols, a list of proposed treatment sites is identified based on the results of the traps placed in 2013. Once identified, participants in the cooperative program evaluate all proposed sites in order to develop the appropriate method of treatment for each site. While STS does not lower the intensity of future

outbreaks, it does delay the occurrence of the first one. A cost benefit analysis was done of the STS program (Sills, 2007). Under conservative conditions, it found a benefit of three dollars for every one dollar spent on the program. The State of Illinois has participated in the STS program since it became operational in 2000.

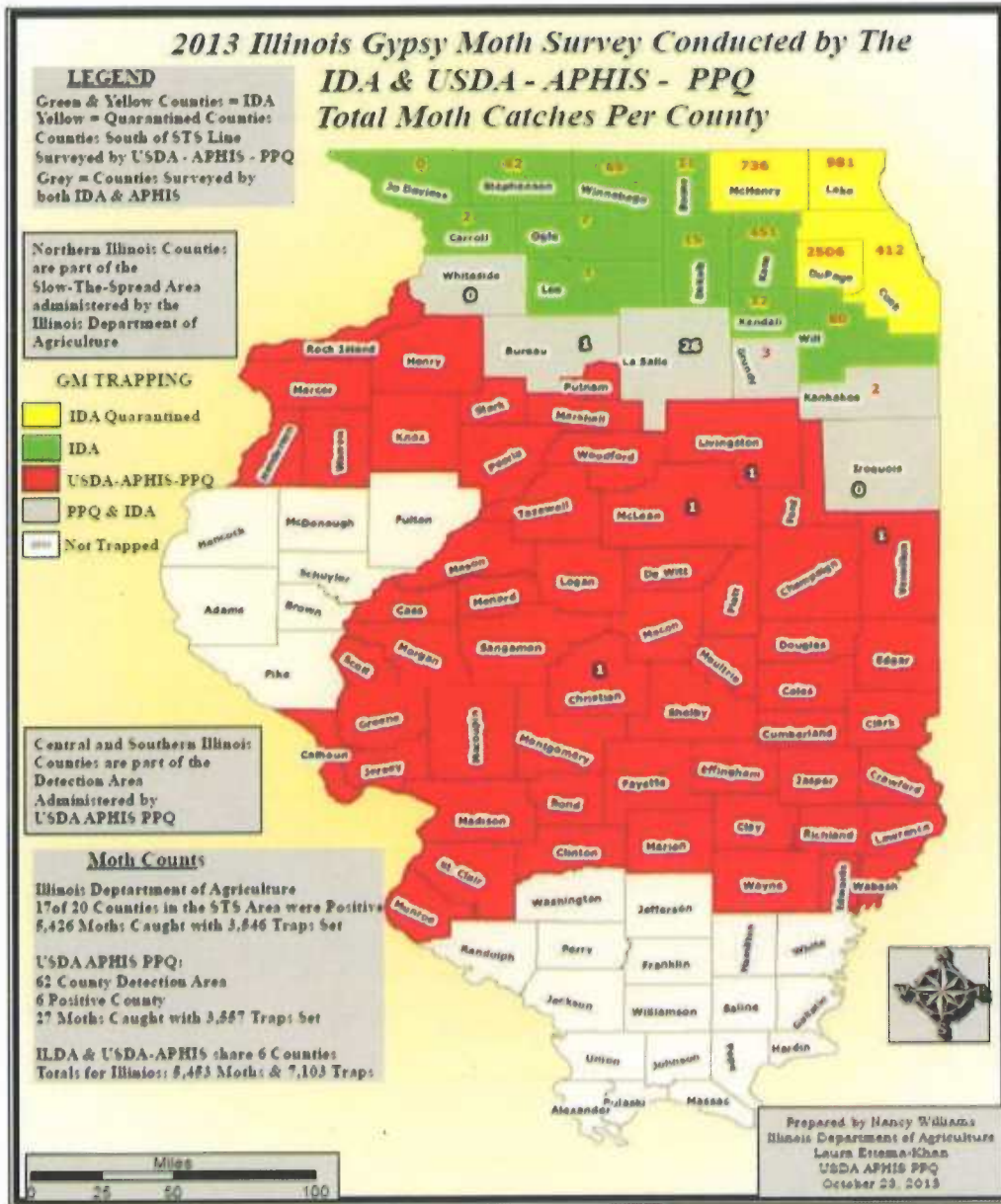


Figure 2. 2013 trap results showing results (county totals) and responsible agencies.

As part of STS, participating agencies in Illinois (IDOA and USDA APHIS PPQ) placed approximately 7,100 detection traps in 2013 to assess gypsy moth populations in the state (Figure 2). Trapping data from 2013 documented a continued decrease in male moth trap counts, down to 5,453 male moths,

dropping by more than 50% from 2012 total of approximately 12,600 moths. This is part of an ongoing decrease since 2008, when a record setting 133,424 moths were caught. In 2013, trapping data shows the “infested front” retreated nearly 12 km (see <http://old-da.ento.vt.edu/spread/spread5.html>).

The STS decision algorithm is a model that uses information from traps and moths detected to determine where the gypsy moth is likely to be present. Trapping data was analyzed by the STS decision algorithm, which identified the sites proposed for treatment or increased trapping. If it seems likely that a population is present, treatments are proposed. If the results are inconclusive, additional trapping is proposed for the following year. The detailed protocol used by STS for selection and prioritization of treatment sites is discussed on the decision support portion of the STS web site:

<http://skynet.ento.vt.edu/da/da.htm> . Alternate life stage surveys were conducted in some sites proposed for treatment. The results of these surveys played a role in refining proposed treatments.

1.4 Decisions to be Made and Responsible Officials

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

The alternatives analyzed are:

1. No cooperative project (the No Action Alternative)
2. Mating disruption only (the Preferred Alternative)

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, this 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 USFS official who will make this decision is: **Michael Connor, Acting Field Representative**, USDA, Forest Service, State and Private Forestry, Northeastern Area, 1992 Folwell Avenue, St. Paul, MN 55108. Phone: 651-649-5276.

The official will decide in May 2014 after all scoping efforts have been concluded.

The responsible officials for implementing the gypsy moth program within the Illinois Department of Agriculture are:

- Nancy Johnson, Gypsy Moth Program Manager, IDOA, Division of Natural Resources, Bureau of Environmental Programs, 2280 Bethany Road, Suite B, De Kalb, IL, 60115. Phone: 815-787-5476.
- Scott Schirmer, Invasive Species Program Manager, IDOA, Division of Natural Resources, Bureau of Environmental Programs, 2280 Bethany Road, Suite B, De Kalb, IL, 60115. Phone: 815-787-5476.

1.5 Scope of the Analysis

Since 1996, the USDA has carried out its gypsy moth management responsibilities through the USFS and Animal and Plant Health Inspection Service (APHIS) and pursuant to a programmatic decision based on a 1995 environmental impact statement (EIS) for gypsy moth management. The Record of Decision (ROD) for that EIS was signed in January of 1996; it allowed three management strategies – suppression, eradication, and slow-the-spread. The 1995 EIS was updated with a final supplemental environmental impact statement (SEIS), titled “Gypsy Moth Management in the United States: A Cooperative Approach,” dated August 2012. The ROD for the SEIS was signed by the USFS in November 2012. It maintains the three strategies of suppression, eradication, and slow-the-spread. These strategies depend upon the infestation status of the area: generally infested, non-infested, and transition. The counties involved in this EA are all within areas considered to be “in transition”.

Implementation requires that site-specific environmental analysis be conducted and public input gathered to identify and consider local issues before any Federal or cooperative suppression, eradication, or slow-the-spread projects are authorized and implemented. As part of the analyses conducted for the SEIS, human health and ecological risk assessments were prepared (USDA 2012a, Volumes III and IV). These site-specific analyses are tiered to the programmatic EIS and SEIS and documented in accordance with Agency National Environmental Policy Act (NEPA) implementing procedures (USDA 2012b, ROD, p. 2). The purpose of tiering is to eliminate repetitive discussions of the issues addressed in the SEIS (40 CFR, 1502.20 and 1508.28 in Council on Environmental Quality, 1992). This EA provides a site-specific analysis of the alternatives and environmental impacts of treating gypsy moth populations.

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 comments and concerns.

In the development of the proposed treatment areas, IDOA worked in conjunction with governmental entities (e.g., counties, cities, Illinois Department of Natural Resources State Parks) and other interested parties (e.g., County Forest Districts, Forest Preserve Districts) within the proposed treatment areas. Solicitation of input was made to accommodate any special needs and concerns of participating communities.

Following initial contacts, press releases were used to inform additional community leaders, elected officials, interested groups, residents, and the local news media of opportunities to learn more about and

comment on the treatment proposals. Illinois Department of Agriculture staff held five open houses as part of public outreach (Table 2). At each of these meetings, staff gave presentations at and answered numerous questions. A number of media interviews occurred as results of these meetings.

Table 2. Date, time, and approximate attendance information for open houses

| Site | Date | Time | # Attendees |
|-----------------------------------|------|-----------------------|-------------|
| West Chicago Maintenance Facility | 4/1 | 3:00 p.m. – 6:00 p.m. | 4 |
| Indian Prairie Public Library | 4/2 | 3:00 p.m. – 6:00 p.m. | 0 |
| Joliet Public Library | 4/3 | 3:00 p.m. – 6:00 p.m. | 3 |
| DuPage County Forest Preserve HQ | 4/8 | 4:00 p.m. – 6:00 p.m. | 2 |
| Oglesby Public Library | 4/10 | 3:00 p.m. – 6:00 p.m. | 6 |

Legal notices in papers, info on the IDOA website, and open houses were the primary methods of outreach in 2014. Restricted funding precluded the large scale mailings that were done in the past. All of these information outlets included instructions on how to give feedback or obtain more information.

The IDOA will remind local government, residents, and the media of the proposed treatments by news releases to radio, TV, newspapers, open houses, and other outreach methods. Notification (reminders) will take place approximately a week prior to the planned start of treatment activities.

Information gathered during the 2014 public meetings and from public meetings held in previous years, along with material collected from resource professionals, industry, and environmental groups was used to develop issues and concerns related to this project. Two broad categories were developed: 1) issues used to formulate the alternatives, and 2) other concerns and questions.

1.7 Issues Used to Formulate the Alternatives

Each of the major issues is introduced in this section. Discussion pertaining directly to each issue as it relates to the alternatives can be found in summarized in Table 3 (Section 2.4) and discussed at length Chapter 4.

Issue 1 - Human Health and Safety. Three types of risk are addressed under this issue: 1) an aircraft accident during applications, 2) treatment materials and potential effects on people, and 3) the future effects of gypsy moth infestations on people.

Issue 2 - Effects on Nontarget Organisms and Environmental Quality. The major concerns under this issue are: 1) the impact of treatment materials to nontarget organisms, including threatened and endangered species that may be in the treatment sites, and 2) the future impacts of gypsy moth defoliation on the forest resources, water quality, wildlife and other natural resources.

Issue 3 - Economic and Political Impacts of Treatment vs. Non-Treatment. Gypsy moth outbreaks can have significant economic impacts due to effects on the timber resource, nursery and Christmas tree producers, and recreational activities. An additional economic impact is a gypsy moth quarantine

imposed to regulate movement of products from the forest, nursery and recreational industries to uninfested areas.

Issue 4 - Likelihood of Success of the Project. The objective of this cooperative project is to slow the spread of the gypsy moth populations in Illinois by eliminating reproducing populations from the proposed treatment sites. Alternatives vary in their likelihood of success for the current situation in Illinois. Measurement of project success is important for delaying gypsy moth impacts to other parts of Illinois and neighboring states.

1.8 Other Concerns and Questions

Concerns and questions were discussed during the public meetings and from other methods of contact and outreach (see Appendix B). Also, other agencies were consulted (see Section 6.0). Information from these sources was used to develop management guidelines, treatment constraints, and mitigating measures.

1.9 Summary of Authorizing Laws and Policies

State authorities

As a cooperator the IDOA is responsible for program implementation, assessment, and analysis. The IDOA is authorized to utilize restrictions and carry out 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. Compiled Statutes Ch. 415, Par. 60/1, et. seq.) requirements for Commercial Applicators. This project will be conducted in accordance with the National Pollutant Discharge Elimination System (NPDES) requirements and is operating under Illinois Pesticide General Permit ILG870036.

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 authorities

Authorization to conduct treatments for gypsy moth infestations is given in the Plant Protection Act of 2000 (7 U.S.C. section 7701 et. seq.).

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 forestland. The Agriculture Act of 2014 (P.L. 113-79, also called the 2014 Farm Bill) reauthorizes the basic charter of the Cooperative Forestry Assistance Act of 1978.

The National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190), 42 USC 4321 et. seq. requires a detailed environmental analysis of any proposed federal action that may affect the human environment. Federally funded and planned state actions are considered 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 of 1973, as amended (16 USC 1531 et. seq.) 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. Consistent with this Executive Order, the USFS considered the potential for disproportionately high and adverse human health or environmental effects on any minority or low-income populations. The proposed treatment sites have been determined based on results from gypsy moth surveys using STS protocols. The proposed treatment itself will have minimal effects, and it will not have disproportionate effects to any minority or low-income population.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Process Used to Formulate the Alternatives

The ROD for the SEIS (USDA 2012b, ROD), to which this document is tiered, maintains the three strategies for gypsy moth management (eradication, slow-the-spread, and suppression) that were allowed in the EIS (USDA 1995) and the ROD (USDA 1996). Therefore, the USFS and APHIS can assist in funding and carrying out eradication, suppression, and slow-the-spread projects. The ROD for the SEIS adds the insecticide tefubenozone to the previous list of 6 approved treatments from the 1995 EIS. Therefore, seven treatments can be considered for use in developing treatment alternatives under the slow-the-spread and eradication strategies: 1) Btk; 2) diflubenzuron; 3) Gypchek; 4) mass trapping; 5) mating disruption; 6) sterile insect release; and 7) tebufenozone.

2.2 Alternatives Eliminated from Detailed Study

The following alternatives that are available were eliminated from consideration:

Btk (*Bacillus thuringiensis* subsp. *kurstaki*). This microbial insecticide is specific to lepidopteran larvae and is very effective when used as part of the STS strategy to reduce or eradicate isolated high-density populations of the gypsy moth. It is often proposed when alternate life stages (eggs, pupae, or caterpillars) are found or trap catches are very high. Btk was not included in this project due to low population levels, its high cost relative to some other treatments, and because there are other products that can work successfully with fewer potential effects on non-target organisms. In future projects, it may be evaluated for use.

Diflubenzuron (Dimilin). The label for Dimilin prohibits its use over wetlands and directly to water. Some treatment sites contain ponds, lakes, marsh, rivers, and/or wetlands. There are other products with fewer non-target effects that would work successfully for this program. Therefore, Dimilin is not considered for this project. In future projects, it may be evaluated for use.

Gypchek. Gypchek has proven effective at reducing gypsy moth at higher population levels. However, Gypchek is a costly alternative with a very limited supply and is only used in environmentally sensitive areas, generally those with threatened or endangered lepidopterans which could be impacted by other treatment options (USDA 2012a, Vol. II, App. A, pp. 3 to 4). No threatened or endangered lepidopterans are in or near the proposed treatment sites, so it is not considered for this project. In future projects, it may be evaluated for use.

Mass trapping. Mass trapping uses an intensive grid of traps limit reproduction. Mass trapping is typically used on small gypsy moth infestations of 100 acres or less (USDA 2012a, Vol. II, App. A, p. 5), and generally uses 9 or more traps per acre. This approach is very labor intensive and costly, especially over large areas. Mass trapping has proven capable of eliminating or reducing gypsy moth at very low population levels in small sites. The use of mass trapping can meet the project objective of

slowing the rate of spread of gypsy moth at small treatment sites. Due to the moth catches and the size of the areas proposed for treatment, mass trapping is not considered for this project. In future projects, it may be evaluated for use.

Sterile insect release. Sterile insect release can be done for elimination of isolated gypsy moth populations. There are obstacles using this alternative - the limited release period; need to synchronize production of mass quantities of sterile pupae; and the logistical difficulties of repeated release over a 4-week period (USDA 2012a, Vol. II, App. A, p. 7). This treatment alternative is currently not available, and it has not been used since 1992 (USDA 2012a, Vol. II, App. A, p. 8). Given these obstacles, sterile insect release is not considered for this project. In future projects, it may be evaluated for use.

Tebufenozide (Mimic). The label for Mimic prohibits its use over wetlands and water. Some treatment sites contain ponds, lakes, marsh, rivers, and/or wetlands. There are other products with fewer non-target effects that would work successfully for this program. Therefore, Mimic is not considered for this project. In future projects, it may be evaluated for use.

2.3 Alternatives Considered in Detail

Alternative 1 - No action. If the no action alternative is selected, the IDOA would not receive funding from the USFS to conduct gypsy moth treatments in 2014. Some individual communities might treat for gypsy moth (independent of STS or any state program), but there would be no coordinated effort to identify and prioritize treatments to slow the rate of spread of the gypsy moth. Treatments done in this manner would not have similar treatment notification requirements. Further, the use of broad spectrum insecticides, with their broader non-target effects, is possible. Populations would continue to increase and begin to defoliate trees in the area. The gypsy moth would spread to surrounding areas and across Illinois. Gypsy moth damage will become evident much sooner than if alternative 2 is selected.

Alternative 2 - Mating disruption. This treatment option uses one aerial application of either pheromone flakes or SPLAT (Specialized Pheromone and Lure Application Technology) GM with the active ingredient (disparlure), prior to the emergence of male moths. Application would occur in mid-June to early July. Mating disruption relies on the attractive characteristics of disparlure, the gypsy moth pheromone. The objective of mating disruption is to saturate the treatment area with enough pheromone sources 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 nontarget organisms (USDA 2012a, Vol. II, Ch. 4, pp. 19 to 20). Like other insect pheromones, disparlure is generally regarded as nontoxic to mammals, and no adverse effects are expected from exposure (USDA 2012a, Vol. II, Ch. 4, p. 19).

Mating disruption using pheromone flakes involves the aerial application of plastic flake dispensers that are infused with the gypsy moth pheromone. The formulation of Disrupt II consists of small plastic flakes, approximately 1/32 inch x 3/32 inch (1 x 3 mm) in size, thus the name “pheromone flakes”. A sticker is applied to the flakes as they are dispersed from the aircraft, which aids in the distribution of the flakes throughout all levels in the forest canopy where mating could potentially occur. The flakes are

green in color and applied at a rate of 6 or 15 grams active ingredient (disparlure) per acre. At the high rate of 15 grams, 85 grams of flakes (~ 2 flakes per square foot) are applied with 2 fluid ounces of sticker per acre. All of the ingredients in the sticker are considered non-hazardous to public health when used as an additive in the insecticide formulation.

Mating disruption using SPLAT GM involves the aerial application of amorphous polymer matrix droplets that are infused with the gypsy moth pheromone. The formulation of SPLAT GM consists of small waxy droplets, approximately 0.3 mm to 2.0 mm in size when released from a conventional aerial application system. The droplets are a grayish white in color and applied at a rate of 3 grams to 30 grams of active ingredient (disparlure) per acre. Applications would most commonly be applied at a rate of either 6 or 15 grams (equivalent of approximately 1.2 teaspoons or 3.0 teaspoons) of pheromone per acre. All of the matrix ingredients are cleared as food safe by the FDA and are biodegradable.

Mating disruption has proven effective at eliminating or reducing gypsy moth at very low population levels and is generally used in treatment areas greater than 40 acres in size. However, mating disruption does not work well at higher population levels when mate location can occur without pheromone cues. This inexpensive treatment option (approximately \$8.00 - \$15.00 per acre), can meet the project objective of slowing the rate of spread of gypsy moth at some of the proposed treatment sites. Mitigating measures that apply to the alternatives are shown in Section 4.7.

2.4 Comparative Summary of Alternatives

Table 3. Summary of Environmental Consequences for Alternatives by Issues (see Chapter 4).

| | Issue 1: Human Health & Safety | Issue 2: Effects on Nontarget Organisms & Environmental Quality |
|---|---|---|
| Alternative 1: No Action | <ul style="list-style-type: none"> - No risk of an aircraft accident or spill from program activities. - No risk of pesticide contact with humans from program activities. - Gypsy moth (GM) outbreaks and associated nuisance impacts on humans would occur sooner than under other alternatives. | <ul style="list-style-type: none"> - If private pesticide applications occur, less consideration would be given to T&E species since consultation is not required. - If private pesticide applications occur, there are few restrictions on the use of broad spectrum insecticides resulting in greater likelihood for impacts to water quality, forest communities, and nontarget organisms than with treatment alternatives. - No direct effect to non-target organisms, including threatened and endangered species. - Future changes to local forest ecosystems associated with GM would occur sooner if this alternative is selected. The oak component would be reduced and some native insects would be directly impacted by loss of food and habitat due to leaf loss caused by GM feeding. |
| Alternative 2: Mating disruption | <ul style="list-style-type: none"> - Slight risk of aircraft accident/ pesticide spill exists. - There are no known effects of mating disruption products on human health. - Work, safety and security plans are developed to minimize the chance of an accident or exposure to mating disruption products. - Use would delay the effects of GM outbreaks on humans | <ul style="list-style-type: none"> - Consideration given to T&E species. - Since mating disruption is highly specific to the GM, no direct effects are anticipated for nontarget species. - It is highly unlikely that there would be any indirect effects to nontarget species. - Use of mating disruption would delay the establishment of GM, thereby maintaining native food web and ecosystems. |

Table 3, continued.

| | Issue 3: Economic and Political Impacts | Issue 4: Likelihood of Success of the Project |
|---|--|---|
| Alternative 1: No Action | <ul style="list-style-type: none"> - Regulatory action would be implemented sooner in the counties to prevent spread than in other alternatives. - There would be increased funding needs to support implementation of regulatory actions. - More widespread infestations would result in financial impacts to the nursery, tourism and forestry industries. - Public nuisance factors could lead to increased pressures on governmental bodies to find additional funds to implement suppression projects. - Does not slow the spread of GM. | <ul style="list-style-type: none"> - Project objectives would not be met. - Spread of GM into adjacent counties would not be slowed. - GM would not be eliminated or suppressed in treatment sites. |
| Alternative 3: Mating disruption | <ul style="list-style-type: none"> - If GM populations are low enough, use would delay regulatory action and quarantines. - If populations are low enough, regulatory action would not be implemented in counties proposed for treatment during the current year. - If populations are low enough, use would delay costs of widespread suppression to state and local governments. - If populations are low enough, use would result in reduced urban forest impacts and public nuisance factors. - Complaints, comments and questions related to aerial application may occur. - If populations are low enough, slows the spread of GM. | <ul style="list-style-type: none"> - Success is not likely for all proposed treatment areas because GM populations are too high at some sites. - Slowing the spread of GM is probable, considerably delaying the buildup and spread of GM, though failures are likely in areas with higher populations. - New infestations will still occur in the future resulting in future projects. - Success is not determined until two years after application, as residual pheromone can affect trap catch the year after application. This causes a delay in response if GM populations persist. |

3.0 AFFECTED ENVIRONMENT

3.1 Description of the Proposed Treatment Sites

Maps of all proposed treatment sites are shown in Appendix A.

Boone County: Boone County is largely rural except for Belvidere, with a population of 30,000 in the south, part of the Rockford community. A mosaic of cropland and woodlands` span this county. Many rural homes have been built in the woodlands. Oak dominates 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. The Kiswaukee River runs east to west with many smaller creeks such as Beaver and Coon creek as tributaries.

Caledonia - Mating Disruption - 6g rate - 3,584 acres. This proposed treatment area is in both Boone and Winnebago Counties. Approximately one third of this site is within Rock Cut State Park. It is wooded rural with a mosaic of cropland and woodlands along with residential areas and farm homes. The block contains a mix of upland oaks and lowland species containing susceptible and non-preferred hosts. Winnebago & Boone and Rock Cut State Park (Illinois Dept of Natural Resources) are the involved government entities.

Cook County: Cook County is nearly entirely urban and includes the City of Chicago. The extreme northwest and southwest areas still have some agricultural lands. Two moderately sized rivers run through the county, which have fairly continuous gypsy moth habitat. The Cook County Forest Preserve District manages extensive, forested lands, which contain oak, hickory, willow, birch, and others. In the intensive urban area, landscaping is a major avocation, with apple, cherry, willow, and oak species being very popular. Since the populace is highly mobile and commonly travels to other regions for recreational purposes, movement of gypsy moth and establishment of new infestations are a concern.

A portion of the **Geneva** proposed treatment area is in Cook County. Since the majority of this area is in Kane County, the treatment area description is there.

A portion of the **Romeoville 1** proposed treatment block is in Cook County. Since the majority of this area is in DuPage County, the treatment area description is there.

A portion of the **West Chicago 1** proposed treatment block is in Cook County. Since the majority of this area is in DuPage County, the treatment area description is there.

DuPage County: DuPage is highly urban, and 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 manage many green spaces that support oak species. Some of these preserves contain high-quality remnant forests. Many residential subdivisions have been 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. Since the populace is highly mobile and commonly travels to other regions for recreations purposes, movement of gypsy moth and establishment of new infestations are a concern.

A portion of the **Geneva** proposed treatment area is in DuPage County. Since the majority of this area is in Kane County, the treatment area description is there.

Romeoville 1 - Mating Disruption - 15g rate - 5,434 acres. This area is mostly urban residential and County Forest Preserves, as well as a large portion of this site belonging to Argonne National Laboratory. The US Department of Energy owns the land, approximately 1,500 acres. Waterfall Glenn Forest Preserve also makes up a large part of this site. Susceptible ornamentals have been planted around the homes. This area has many host types including upland oaks, bottomland oaks, hickory, willow, and residential areas with susceptible and non-susceptible hosts. The Des Plaines River and the Cal Sag Channel run through the lower portion of this block. A portion was treated with Btk in 2007. DuPage County, DuPage County Forest Preserve, Will County, Cook County, Bolingbrook, Lemont, Darien, Burr Ridge, and the Department of Energy are the involved government entities.

West Chicago 1 - Mating Disruption - 6g rate - 5,443 acres. This treatment block is located at the extreme northwest edge of Dupage County. It is mostly urban residential with scattered County Forest Preserves, golf courses and many local parks including Pratts Wayne Woods Forest Preserve as well as the west branch of the Dupage River. Susceptible ornamentals have been planted around the homes. This area has many host types including upland oaks, bottomland oaks, and residential areas with susceptible and non-susceptible hosts. DuPage County, DuPage County Forest Preserve, Cook County, Elgin, Wayne, Streamwood, Carol Stream, and West Chicago are the involved government entities.

West Chicago 3 - Mating Disruption - 15g rate – 3683 acres. This treatment block is located at the west side of Dupage County. It is mostly urban residential with scattered County Forest Preserves, golf courses and many local parks including Timber Ridge Forest Preserve. Susceptible ornamentals have been planted around the homes. This area has many host types including upland oaks, bottomland oaks, and residential areas with susceptible and non-susceptible hosts. DuPage County, DuPage County Forest Preserve, Carol Stream, West Chicago, Warrenville, Winfield, and Wheaton are the involved government entities.

Kane County: Kane County has a mix of urban and rural uses. The eastern 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 and small developments that are built into wooded areas. The northeast portion of the county 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 woodlots. The lowlands along the rivers and streams have many bur oak, willows, and river birch. Apple, cherry, and paper birch are popular ornamentals.

Aurora - Mating Disruption - 6g rate - 1,584 acres. This proposed treatment area is both Kane and Kendall Counties. Most of the proposed treatment area is a residential area in Montgomery. It is along the Fox River and includes many wetlands and parks with remnant oak communities. This area has many host types including upland oaks, bottomland oaks, and residential areas with susceptible and non-susceptible hosts. Kendall County, Kane County and the Village of Montgomery are the involved government entities. A portion was treated with Btk in 2013.

Geneva - Mating Disruption - 6g rate - 8,471 acres. This treatment block is located at the extreme northwest edge of Dupage and eastern Kane Counties It is mostly urban residential with scattered County Forest Preserves,

golf courses and many local parks including Pratts Wayne Woods Forest Preserve. Susceptible ornamentals have been planted around the homes. This area has many host types including upland oaks, bottomland oaks, and residential areas with susceptible and non-susceptible hosts. DuPage County, DuPage County Forest Preserve, Kane County, Cook County, South Elgin, Elgin, Bartlett, St. Charles Geneva, and West Chicago are the involved government entities.

Kendall County: Oswego and Yorkville dominate the north half of Kendall County. The Fox River and its tributaries dissect the farmland and residential areas with wooded and riverside plant communities. Bottomland and oak upland communities exist along the Fox River. Southern Kendall County is open farmland with only occasional trees in farmsteads. Several creeks provide potential for small wooded communities

A portion of the **Aurora** proposed treatment block is in Kendall County. Since the majority of this area is in Kane County, the treatment area description is there.

La Salle County: In land area, LaSalle is a large county, but its population is fairly small. Towns are located along its rivers and major creeks. The Illinois River runs through the counties center and is Illinois third major, navigable waterway. It is fed by the Fox, Vermilion, and Little Vermilion Rivers. Several large creeks are tributaries to these rivers. State owned recreation facilities occur along the Illinois River. The woodlands are restricted to the lands adjacent to the rivers and creeks. Lands away from the water courses are open farmlands with only the occasional tree in farmsteads. Watercourses display both bottomland and oak upland communities. The approximately 20 towns have a small variety of planted ornamentals.

LaSalle - Mating Disruption - 6g rate - 2,881 acres. This site includes a residential area within the town of Oglesby as well as Starved Rock State park, which is one of the jewels of the Illinois Park system. Oak predominates throughout this area in the neighborhoods as well as along the river and park. The Starved Rock area consists of both the bluffs and bottomlands along the Illinois River. A mix of upland oaks and lowland communities containing susceptible and non-preferred hosts exist within this site. Deer Park Country Club is also within this block and contains oaks and susceptible ornamentals. The Department of Natural Resources, LaSalle County, and Village of Oglesby are the involved government entities. This area was treated with Btk and MD in 2009.

Stephenson County: The area is a highly rural county with agriculture as the main land use and land cover. Most land has been cleared for agriculture. Wooded farmsteads are scattered through the farm land. Stream courses harbor some larger wooded areas. For Illinois, Stephenson County is topographically quite diverse. Its northern third and western edge are the hilliest with the other regions flattening out somewhat. Many streams flow through the county with the Pecatonica River as the major waterway. On the north it adjoins Wisconsin's Green County. Only a few small towns exist in the county, and Freeport is the largest town. Lake Le Aqua-na State Park is the only recreational center.

Freeport - Mating Disruption - 6g rate - 3,785 acres. This site consists mostly of subdivisions and a few farmsteads built in a remnant oak community along with other stands of mixed timber. Susceptible ornamentals

have been planted around the homes. Willow Lake as well as the Pecatonica River is within the treatment area. Stephenson County and the City of Freeport are the involved government entities.

Will County: The northern portion of this county comprises the south edge of the Chicago Metro Area. This region contains Joliet, many small communities, and many rural residential developments. The Des Plaines and DuPage Rivers run through Will County. The central and southern portion of the county gives way to mostly agricultural uses. The Midewin National Tallgrass Prairie is located in southwestern Will County. The remnant forests are dominated by oak, while willows and river birch are common along the rivers and creeks. Common ornamentals are cherry, apple, and paper birch.

Joliet - Mating Disruption - 15g rate - 260 acres. This site consists mostly of an urban neighborhood with a few stands of remnant oaks. Susceptible ornamentals have been planted around the homes. One park – Rivals Park this is almost all scrub timber and as well as willows. Joliet and Will County are the involved government entities.

A portion of the **Romeoville 1** proposed treatment block is in Will County. Since the majority of this area is in DuPage County, the treatment area description is there.

Winnebago County: Winnebago County is largely rural except for Rockford, the third largest city in Illinois. A mosaic of cropland and wooded land span this county. Many rural homes have been built in the woodlands. Oak dominates 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. The Rock River runs north to south and is a major tributary of the Illinois River.

A portion of the **Caledonia** proposed treatment block is in Winnebago County. Since the majority of this area is in Boone County, the treatment area description is there.

3.2 Threatened and Endangered Species

Prior to beginning an STS project, the USFS consults with the USDI-FWS as 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. The results of consultation with the USDI-FWS and IL-DNR's Endangered Species program staff to determine what, if any, adjustments will be made to the proposed project to conserve these species and to minimize or avoid potentially adverse impacts. In 2014, the federally listed species that required consideration included Indiana bat, Northern long eared bat, Eastern Prairie Fringed Orchid, Hine's Emerald Dragonfly and a variety of mussels, snails, and other prairie plants. As long as the mitigations are followed (including the removal of some Hine's Emerald Dragonfly habitat from proposed treatment areas), the USDI-FWS has concurred with our findings of not likely to adversely affect Indiana bat, Northern long eared bat, Eastern Prairie Fringed Orchid, and Hine's Emerald Dragonfly. For all other federally listed threatened and endangered species, our determination was no effect. Correspondence regarding this consultation is on file with the USFS, St. Paul Field Office and IDOA.

The Illinois DNR Natural Heritage Program, the Illinois Nature Preserves Commission, and the Impact Assessment Section of the Office of Realty and Environmental Planning have reviewed all proposed treatment areas. Letters of termination of consultation have been received for all proposed treatment areas. The IL DNR recommended permits for work in some proposed treatment areas containing state lands (Caledonia, Geneva, LaSalle, and Romeoville), all of which have been obtained. Hines Emerald Dragonfly critical habitat is known to be on or in the vicinity of the Romeoville proposed treatment area. These critical habitat areas are not forested and will not be treated as part of this program, in accordance with the product labels, and as part of an agreement with Illinois DNR Natural Heritage and the USDI-FWS.

All correspondence regarding these consultations are on file with the USFS, St. Paul Field Office and IDOA.

3.3 Protection of Historic Properties

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. In Illinois, the State Historic Preservation Officer (SHPO) is informed of the proposed action. The Illinois Historical Preservation Agency has believes that gypsy moth management activities are unlikely to affect historic properties in 2014. Correspondence regarding this consultation is on file with the USFS, 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 (effects) of each alternative for each issue. Environmental consequences are summarized in Table 3 (Section 2.4) for each combination of the alternatives and issues.

4.1 Human Health and Safety (Issue 1).

Alternative 1 – No action. For this alternative, there would be no cooperative project, therefore risk of human contact with mating disruption and an aircraft accident during application would not exist. However, future impacts by gypsy moth to human health will 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 (USDA 2012a, Vol. IV, App. L, pp. 3-1 to 3-4). Gypsy moth caterpillars can become a serious nuisance that can cause psychological anxiety in some individuals (USDA 2012a, Vol. IV, App. L, pp. 3-4 to 3-5).

Alternative 2 – Mating disruption. A detailed analysis of the risks posed to humans by mating disruption, called Human Health Risk Assessment, was conducted (USDA 2012a, Vol. III, App. H, pp. 3-1 to 3-10). The toxicity of insect pheromones to mammals is low, and their activity is target-specific. Therefore, the EPA does not expect effects on humans and requires less rigorous testing of these products than of conventional insecticides. 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 (USDA 2012a, Vol. III, App. H, p. 3-9). In acute toxicity tests, disparlure was not toxic to mammals, birds, or fish (USDA 2012a, Vol. III, App. H, pp. 4-1 to 4-8); 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 USFS or the IDOA representative listed on the cover of this EA.) The IDOA has aeriually treated more than 60 communities for gypsy moth since 1976. Since becoming involved with the USFS gypsy moth STS project in 2000, more than 260,000 acres have been treated without any reported spray plane accidents or spills.

The effect of gypsy moth outbreaks on humans would be delayed using this alternative.

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

Alternative 1 – No action. Selecting the “no action alternative” in 2014 would likely result in a more rapid build-up of gypsy moth populations and defoliation of susceptible forested areas, especially oak dominated forests. In other parts of the northeastern U.S., gypsy moth outbreaks have changed the structure of some forest ecosystems by killing a portion of the oak component and encouraging tree species that gypsy moth caterpillars avoid, such as red maple (USDA 2012a, Vol. II, Ch. 4, pp. 4 to 5). Gypsy moth outbreaks in North America have not resulted in widespread loss of oak, rather a subtle change in many locations towards a more mixed forest (USDA 2012a, Vol. II, Ch. 4, p. 5).

The effects of defoliation depend on many factors, including defoliation severity, frequency, timing, tree health and vigor, and the role of secondary organisms, including insects and pathogens (USDA 2012a, Vol. IV, App. L, p. 4-5). Gypsy moth infestations generally result in tree mortality losses of less than 15% of total basal area, but in some cases can exceed 50% (USDA 2012a, Vol. IV, App. L, p. 4-6).

Gypsy moth defoliation and subsequent tree mortality (especially oak trees) caused by the feeding of millions of caterpillars has a variety of impacts on the environment. Some of these changes are detrimental to certain species and favorable to others during and after gypsy moth outbreaks. Defoliation can result in changes to soil condition, microclimate, water quality, water yield, acorn production, and other environmental factors due to the loss of leaf tissue, the waste material produced by large number of feeding caterpillars, and the tree mortality that can follow outbreaks (USDA 2012a, Vol. II, Ch. 4, pp. 4 to 7). Some species of mammals, birds, terrestrial invertebrates, fish, and aquatic invertebrates are negatively impacted by gypsy moth related feeding (USDA 2012a, Vol. II, Ch. 4, pp. 7 to 9). As an example, acorn production can drop during and immediately following an outbreak and this can reduce populations of white-footed mice (USDA 2012a, Vol. II, Ch. 4, p. 8). On the other hand, dead trees favor some species of birds that use dead wood as nesting sites or that feed on wood or bark infesting insects that thrive in dead and dying trees (USDA 2012a, Vol. II, Ch. 4, p. 8).

It should be noted that in 2014, at all of the proposed STS treatment sites in Illinois, defoliating populations are not expected. The STS program targets treatments at very low gypsy moth population levels. It may be several years before local gypsy moth numbers rise to damaging levels, with or without treatments in 2014.

Alternative 2 –Mating disruption. Mating disruption is likely to maintain the forest condition in the short-term (5 to 10 years) by eliminating gypsy moth populations in the treatment sites thus keeping populations from expanding and causing defoliation. However, in the long-term (10 to 15 years), gypsy moth will likely become more widely distributed in Illinois even if this alternative is followed.

Disparlure may indirectly help in maintaining existing forest conditions, water quality, microclimate, and soil condition (USDA 2012a, Vol. II, Ch. 4, p. 19) by delaying gypsy moth population increases. The ecological risk assessment states that disparlure has a very low toxicity to mammals and birds (USDA 2012a, Vol. III, App. H, pp. 4-1 to 4-2). In addition, it is not likely to cause toxic effects in aquatic species (USDA 2012a, Vol. III, App. H, pp. 4-3 to 4-5). One study found that disparlure caused unusually high mortality in water fleas (*Daphnia*). Later it was determined that the mortality was due

to physical trapping in undissolved disparlure of the organisms at the water surface, not due to toxicity (USDA 2012a, Vol. III, App. H, pp. 4-4 to 4-8). This is an experimental artifact and is not likely to be encountered under operational use.

Disparlure is a pheromone component for some other species in the genus *Lymantria* (USDA 2012a, Vol. III, App. H, pp. 2-1 to 2.2), and could disrupt mating in nun moth or pink gypsy moth (USDA 2012a, Vol. III, App. H, p. 4-2). All of these species are Asian or Eurasian, and are not known to occur in North America. There is no basis for asserting that mating disruption would affect other nontarget species in North America, specifically native Lepidoptera.

Treatments with mating disruption are likely to maintain the forest condition in the short term by eliminating or reducing gypsy moth populations in the treatment sites, thus delaying gypsy moth from expanding and causing defoliation. In the long term, gypsy moth will become established in these counties even if this alternative is implemented.

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

Alternative 1 – No action. If no treatments were applied, the likely action would be to implement quarantine in these counties during the next year. Quarantine would regulate movement of firewood, logs, other timber products, mobile homes, recreational vehicles, trees, shrubs, Christmas trees, and outdoor household articles. This would create a financial impact to industries that deal with these products.

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

Following defoliation, negative financial impacts are likely to occur for recreational industries such as resorts and campgrounds. Homeowners, private woodland owners, and forest based industries could be impacted by gypsy moth treatment costs, tree mortality, and adverse human health effects.

The IDOA expects dissatisfaction to continue to be expressed by the citizens of northeastern Illinois as gypsy moth defoliation becomes evident in the Chicago Metro area. As gypsy moth impacts become noticeable in urban areas within these counties, local citizens are likely to seek assistance from elected officials from the villages and counties, as well as state and federal legislators from Illinois. DuPage, Cook, Kane, Lake, McHenry, Will, and Winnebago counties have dense urban regions and political pressures will likely occur sooner in those areas.

Alternative 2, Mating disruption. Treatments as part of the STS program can slow the spread of gypsy moth. If treatments are applied, regulatory action is not likely for these counties during the next year and the impacts listed under Alternative 1 would be delayed.

However, as the action zone shifts westward, additional quarantine will need to be instituted at some point. Regulatory action may occur in the near future in northeastern Illinois Counties (because the risk of movement of gypsy moth through recreational and human movement) even if the proposed treatments were implemented. In the absence of the implementation of treatments, 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, DuPage, Cook, Will, Winnebago, and other northern Illinois counties, the objective is to eliminate or greatly reduce the gypsy moth populations in these areas, therefore slowing the spread rate of gypsy moth. There would be economic and social benefits to local communities and surrounding counties as well as more distant regions from slowing the spread of gypsy moth. The dissatisfaction of citizens will be delayed, lessening pressures on the elected officials.

In addition to the quarantine costs, there are costs for treatments. The cost of treatments sometimes plays a role in the selection of treatment areas and the products used. For Btk (a frequently used insecticide that targets caterpillars), a standard double application costs more than \$50.00 per acre. For mating disruption, application costs vary from approximately \$8.00 to \$15.00 per acre (or more), depending on the dose used. Beyond the actual treatment costs, additional costs (e.g., contract administration, outreach, postage) occur. These costs often increase as larger areas are proposed, but are otherwise largely unrelated to the type of treatment.

Economic analysis from the Slow-The-Spread Program (STS) demonstrated the use of Btk, mating disruption and other STS technology can reduce the spread of gypsy moth by as much as 60 percent (Sharov et al. 2002). Assessment of the economic feasibility of STS shows that over a 20 year period, the Benefit-Cost Ratio is nearly 3:1 under conservative assumptions (Sills 2007).

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

Alternative 1 – No action. Project objectives would not be met with this alternative. Gypsy moth would not be eliminated at any level from the treatment sites, and its population would serve as a source for increased spread within the counties and into surrounding counties. The unrestricted rate of spread has been 12.4 miles/year historically. Since the STS program started in 2000, the average rate of spread has been 2.5 miles. The program goal has been to reduce the spread by at least 60% (less than 5 miles/year), which has been met.

Gypsy moth populations would not be significantly reduced or eliminated from the proposed treatment sites. This alternative does not meet the proposed objectives for gypsy moth management in Illinois or the STS program. These populations would then serve as a source for increased spread and development further within the counties proposed as well as those nearby. It is estimated that current gypsy moth populations in Illinois could move through the present counties within 1-3 years and

through northern Illinois in 10-20 years if it is allowed to develop and spread unabated. That estimate is based on historical information from gypsy moth spread rates in infested areas prior to implementation of the STS strategy.

Alternative 2 – Mating disruption. Project success is likely with this alternative in the proposed treatment sites with low gypsy moth populations. However, treatment with mating disruption would probably not be successful in areas with high gypsy moth populations. Substantially reducing gypsy moth populations within the treatment blocks using mating disruption is likely. As with Btk, complete and permanent eradication of gypsy moth from Illinois is not feasible. This is due to many factors, mainly to the fact that there will be continued unintentional introductions from humans moving gypsy moth life stages from infested areas into the state by out of state visitors who live in areas infested with the gypsy moth. This would likely result in future projects. However, this alternative is much more likely to slow the spread and buildup of defoliating populations across the state than the “no action alternative”. The STS program (or its predecessors) has been evaluated since 1990 and has reported substantial declines in spread rate (Sharov et al., 2002; Sharov and Liebhold, 1998), further evaluation is reported at: <http://skynet.ento.vt.edu/da/da.htm>. Mating disruption has proven to be very effective in slowing the spread of the gypsy moth. However, a significant limitation of mating disruption is that application can lower the accuracy of detection and post-treatment trapping efforts in the year of treatment and the following year. This makes it harder to assess treatment success, which can delay future management decisions and treatments, limiting program effectiveness.

4.5 Irreversible and Irretrievable Commitments of Resources

An irreversible commitment of resources results in the permanent loss of: 1) nonrenewable resources, such as minerals or cultural resources; 2) resources that are renewable only over long periods of time, such as soil productivity; or 3) a species (extinction) (USDA 1995, Vol. II, p. 4-93). 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. II, p. 4-93). For this project, no irreversible and irretrievable commitments were identified for any alternative.

4.6 Cumulative Effects

Cumulative effects are the incremental impacts of the action when added to past, present, and reasonably foreseeable future actions that are collectively significant. No cumulative effects are expected in the 2014 Illinois Cooperative Gypsy Moth Slow-The-Spread Project.

The use of mating disruption avoids cumulative effects on non-target species because this treatment type is species-specific to the gypsy moth. Further, it is not an insecticide in the conventional sense because it does not kill caterpillars or any other life stage, it simply limits reproduction of gypsy moth.

Since no Btk treatments are proposed in Illinois for 2014, no cumulative effects from Btk applications are possible. As stated in section 1.1, this EA does not consider privately hired treatments for gypsy

moth, and cumulative effects that may result these treatments (if any) are not considered here. As of mid-May, no privately hired work is known for 2014.

Treatments in consecutive years or over multiple years are sometimes needed because not all gypsy moth infestations are sufficiently reduced or eliminated in one year. There are many reasons why the need for multiple treatments can arise; they are often linked to poor conditions during application (e.g., rain, low humidity, etc.) or because operational issues (e.g., equipment breakdowns, contractor delays, continued inclement weather that delays treatment) force suboptimal treatment timing. Sometimes treatments over multiple years are needed when treatment blocks are small or if gypsy moths reinvade from adjacent, untreated habitats. Eradication of high, dense population often require multiple years of application. Further, some treatment strategies require treatments over multiple years to achieve their objectives.

Given that multiple treatments of a site are sometimes needed, IDOA and the cooperative gypsy moth project use a number of strategies in an attempt to limit the cumulative effect of Btk. First, the program uses two main treatment types; Btk and mating disruption. The two treatment techniques can be used in consecutive years or in combination the same year. Btk can be used to limit the intensity of hot spots (in year 1), while mating disruption treatments are often used as follow-up treatments (in year 2). Sometimes the two treatment types are combined in a single year by using Btk cores within larger mating disruption blocks. In these situations, only areas with the highest gypsy moth populations are treated with Btk, and the remainder of the proposed area within the treatment block is treated with mating disruption.

Second, efforts are made to avoid treating the same area with Btk in consecutive years. For example, treatment of the same site with Btk in two consecutive years has occurred only once in Illinois since 2003 (partial retreatment totaling approximately 30 acres in 2009). Obviously, given the many treatment blocks since 2003, treatments in consecutive years with Btk are the exception. They are most likely to be done after a complete treatment block failure due to poor application. When treatments in consecutive years do occur, they generally cover only small portions of a block previously treated with Btk. It is much more likely that if multiple Btk treatments occur at a single site, they are separated in time by two or more years. Temporal separation of Btk treatments gives sensitive lepidopteran species the opportunity for the recolonization from untreated areas (if possible) and allows time for population growth.

Part of two treatment block proposed for 2014 have a history of treatment in the last five years as part of the STS program. Portions of the proposed LaSalle treatment area was treated in 2009: approximately 300 acres were treated with mating disruption, while another 207 acres were treated with Btk. In the proposed Aurora treatment area, approximately 12 acres near the river were treated with Btk in 2013. In total, approximately 520 acres (1.48 % of the total proposed 2014 treatment areas) have been treated previously. The technique of applying Btk in one year and MD the following year is standard in the STS program (described above). Cumulative effects are unlikely in either location as only a small area may be retreated and different treatment types were used in sequential years.

Finally, all proposed treatment blocks consider cumulative effects when designed, and when appropriate, block shape and size are changed to further limit concern about cumulative effects without limiting treatment effectiveness. Input is solicited from the USDI-FWS, IL-DNR, as well as environmental groups, particularly the Illinois Butterfly Monitoring Network.

4.7 Other Information

Mitigation - One of the primary functions of the Cooperative Gypsy Moth Program in conducting aerial spray operations is to make sure the safest possible project is conducted and the least possible impact to non-target organisms occurs. To achieve these objectives, the following has been done or would be done:

- A Work and Safety Plan will be created and implemented for this project.
- Through public outreach (open houses, meetings, media coverage), treatment notifications will occur. Information pertinent to the specific treatment, treatment block boundaries, treatment schedule, and precautions to be taken by responsible government officials will be provided. 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.
- Prior to outreach and treatment work, employees of state and federal agencies will receive training on treatment methods to be able to answer questions from the public.
- State government will notify the public approximately one week before initial treatment activities by using news releases via local radio, TV, and newspaper. Local government entities and safety authorities are kept informed throughout the planning phases of the project but are also reminded approximately 7 to 10 days ahead of the intended starting dates.
- Treatment sites are screened for schools and hospitals, which are contacted with additional treatment information. Affected schools are called shortly before the treatment day, and on the day of treatment a staff member is posted at an involved school site.
- Extensive efforts will be made not to spray over school buses occupied by school children. To help avoid school buses, Btk applications will be shifted to areas in treatment blocks that are unaffected by buses picking up school children whenever it is feasibly possible. Larger congregations of people (softball games, fairs) will be avoided.
- Consult with USDI-FWS and IL-DNR concerning threatened and endangered species, and consult IL-DNR Nature Preserves Commission, and local Forest Preserve and Conservation Districts concerning critical habitats, as appropriate.
- Any mitigation measures for any Threatened or endangered species (Hines Emerald Dragonfly), will be followed, and some areas proposed for treatment have been eliminated based on consultation with USDI-FWS and IL-DNR. Permits were obtained from the Illinois Nature Preserves Commission for treatment of selected State of Illinois properties (see section 3.2).
- Consult with the State Historic Preservation officer to ensure historic properties are not impacted by the proposed action.
- Project aircraft will use Differential Global Positioning System (DGPS) equipment to assist in targeting spray applications. This equipment is used to ensure applications are placed accurately within treatment block perimeters and that accurate swath separations are maintained.
- Project staff will communicate with private helipads and airports in the vicinity when application aircraft will be flying over the treatment sites.

- Aircraft will be calibrated for accurate application of treatment material.
- The applications are proposed for proper timing to ensure that application occurs during the most susceptible gypsy moth life stages.
- 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.

Monitoring - During the treatments, ground observers and/or aerial observers will monitor the application for proper equipment function and accuracy. Application information from the DGPS (e.g. swath widths, spray-on and spray-off, acres treated, and altitude) will be downloaded to an operations-base computer and kept with the project records. The effectiveness of the treatments will be evaluated using pheromone traps in the summer of 2014. The monitoring will occur within and around all treatment sites.

5.0 LIST OF PREPARERS

Nancy C. Johnson, Plant and Pesticide Specialist, Illinois Department of Agriculture, Bureau of Environmental Programs, DeKalb, IL.

EA Responsibilities: Wrote, compiled, and reviewed Illinois Environmental Assessment, led consultation for State threatened and endangered species.

Experience: Gypsy Moth Program Manager since 2012, STS trapping coordinator (GIS and mapping) since 1998, IL state survey and regulatory operations for Emerald Ash Borer since 2008.

John F. Kyhl, Forest Entomologist, USFS, Northeastern Area State and Private Forestry, Forest Health Protection, St. Paul, MN.

EA Responsibilities: Participated in writing and reviewing the Environmental Assessment and consultation with US Fish and Wildlife Service, reviewed the Project Work and Safety plan.

Experience: Entomologist with USFS since 2004. Prior to working with the USFS, John worked as a forest health specialist and gypsy moth suppression coordinator with the Wisconsin Department of Natural Resources in Milwaukee. Current responsibilities include coordination of the Slow the Spread in the Midwest, Forest health activities in Illinois and gypsy moth management projects in Minnesota.

6.0 LIST OF PERSONS AND AGENCIES CONSULTED

The people listed below have been contacted over years as this environmental assessment was refined and improved. Not all persons listed were contacted in 2013.

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- Michael Connor, USDA FS, FHP, St. Paul Field Office, St. Paul, MN
- Anne Haaker, IL Historic Preservation Agency, Springfield, IL
- Kathi Davis, Illinois Natural Heritage program (Illinois DNR), Springfield, IL
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APPENDIX A. MAPS OF PROPOSED ILLINOIS TREATMENT SITES

Map showing the locations of the proposed Btk areas reflect the boundaries and the approximate acreages resulting from the consultation process. Map showing the locations of the proposed mating disruption areas reflect the boundaries and acreages resulting from the consultation process.

| | |
|---|----|
| All proposed treatment areas (multiple counties)..... | 33 |
| Kane/Kendall Counties, Aurora South MD | 34 |
| Boone/Winnebago Counties, Caledonia MD | 35 |
| Stephenson County, Freeport East MD | 36 |
| Kane/DuPage/Cook Counties, Geneva MD | 37 |
| Will County, Joliet MD | 38 |
| LaSalle County, LaSalle MD | 39 |
| DuPage/Will/Cook Counties, Romeoville 1 MD..... | 40 |
| DuPage/Cook Counties, West Chicago 1 MD | 41 |
| DuPage/Cook Counties, West Chicago 3 MD..... | 42 |



Planned Aerial Application of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Nancy C. Johnson, Gypsy Moth Program Manager
 Illinois Department of Agriculture, DeKalb, Illinois
 Nancy.Johnson@illinois.gov
 815/787.5487





STS Slow the spread of the Gypsy Moth to help control it

Planned Aerial Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Treatment ZONE - Disrupt II - 86/acre - Aurora South - Kane & Kendall Counties - 1,584 acres
 Nancy C. Johnson, Gypsy Moth Program Manager
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 815/787.5487





STS Slow the spread of the Gypsy Moth

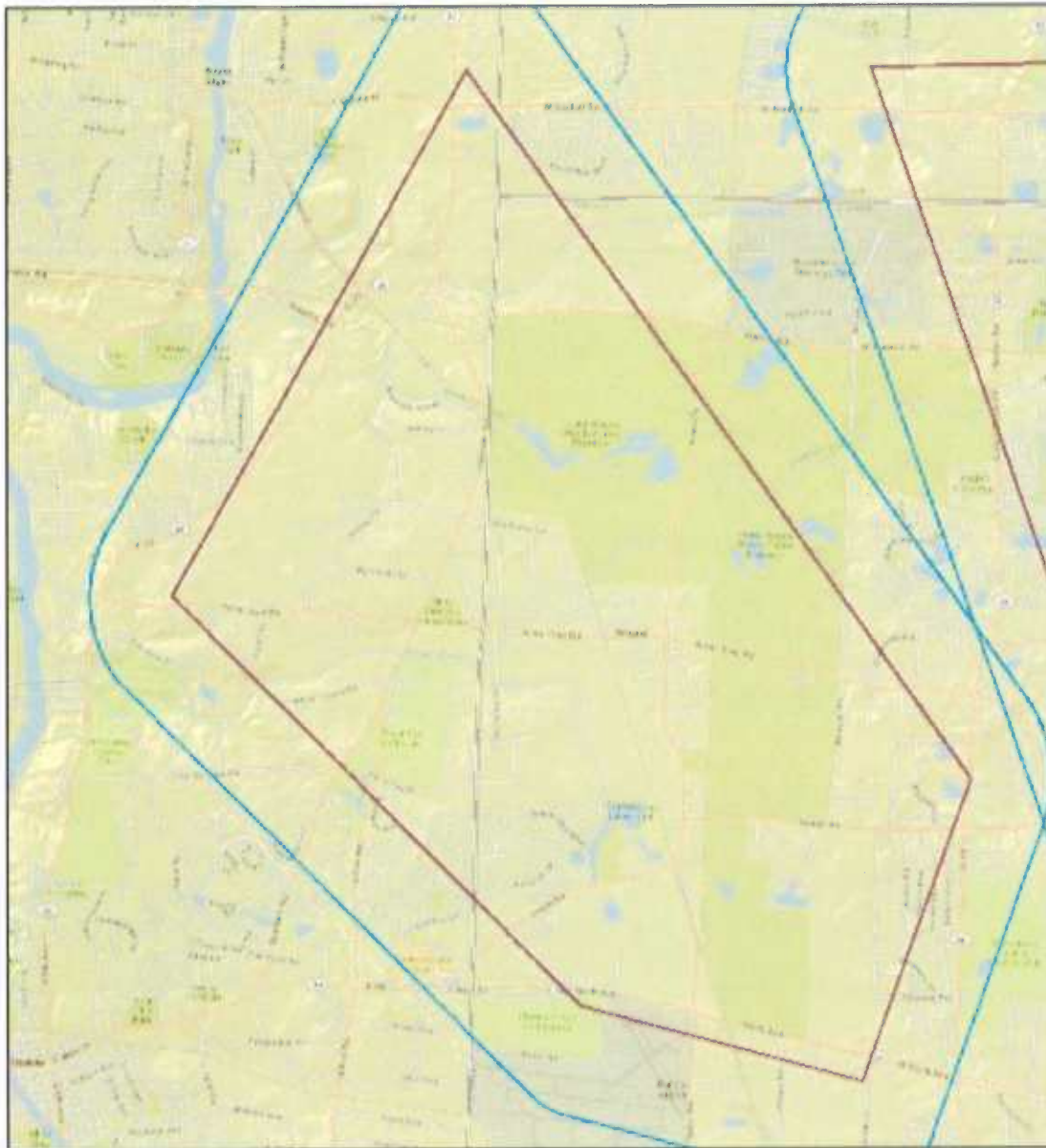
Planned Aerial Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Treatment ZONE - Disrupt II - Aglaore - Caledonia - Winnebago & Boone Counties - 3,584 acres
 Nancy C. Johnson, Gypsy Moth Program Manager
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 815/787.5487





Planned Aerial Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Treatment ZONE - Disrupt II - 6g/acre - Freeport East - Shepherson County 3,785 acres
 Nancy C. Johnson, Gypsy Moth Program Manager
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Planned Aerial Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Treatment ZONE - Disrupt II - 6g/acre
 Geneva - Kane, Dupage & Cook Counties - 8,471 acres
 Nancy C. Johnson, Gypsy Moth Program Manager
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 Nancy.Johnson@Illinois.gov
 815/787.5487





Planned Aerial Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Treatment ZONE - Disrupt II - 15g/acre - Joliet - Will County 200 acres
 Nancy C. Johnson, Gypsy Moth Program Manager
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 Nancy.Johnson@Illinois.gov
 815/787.5487

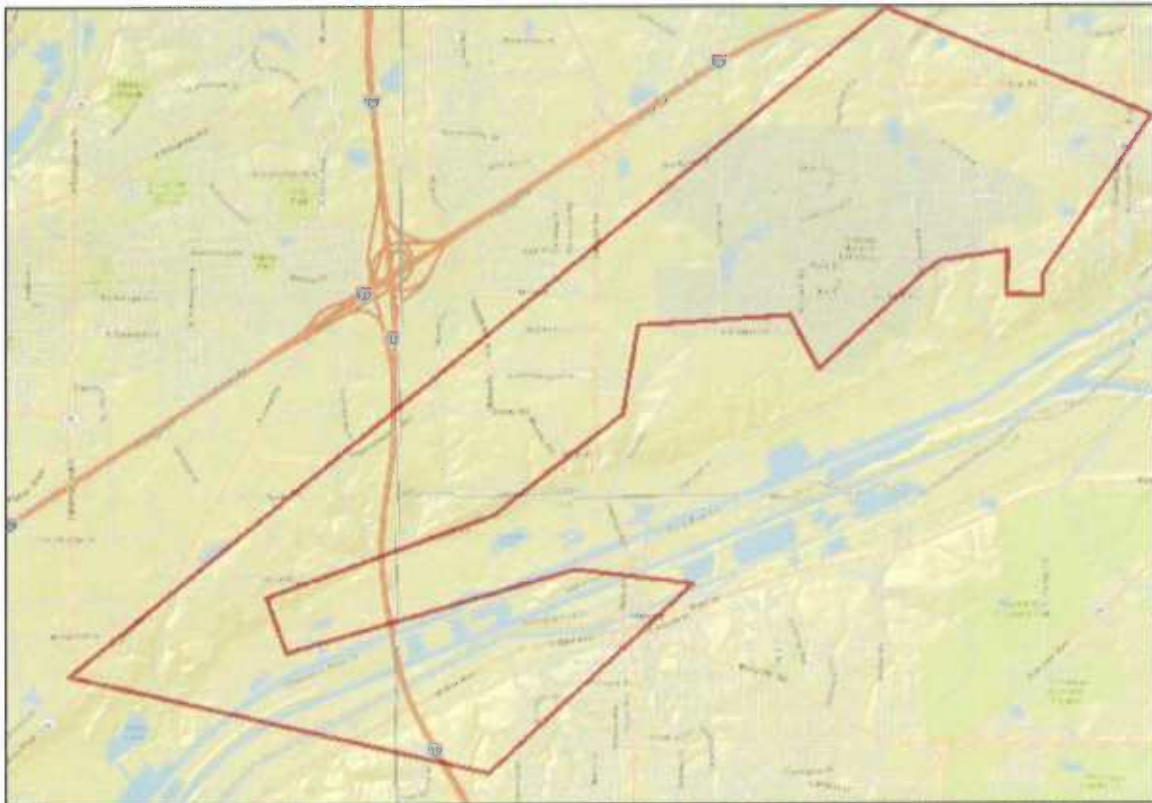




STS Slow the Spread of the Gypsy Moth and its pestiferous larvae

Planned Aerial Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Treatment ZONE - Disrupt II - 6g/acre - LaSalle/Starved Rock - LaSalle County 2,681 acres
 Nancy C. Johnson, Gypsy Moth Program Manager
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STS Slow the Spread
of the Gypsy Moth
Save the Sound Forest of IL

Planned Aenal Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Romeoville 1 15g/acre 5,434 acres
 Nancy C. Johnson, Gypsy Moth Program Manager
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 815/787.5487

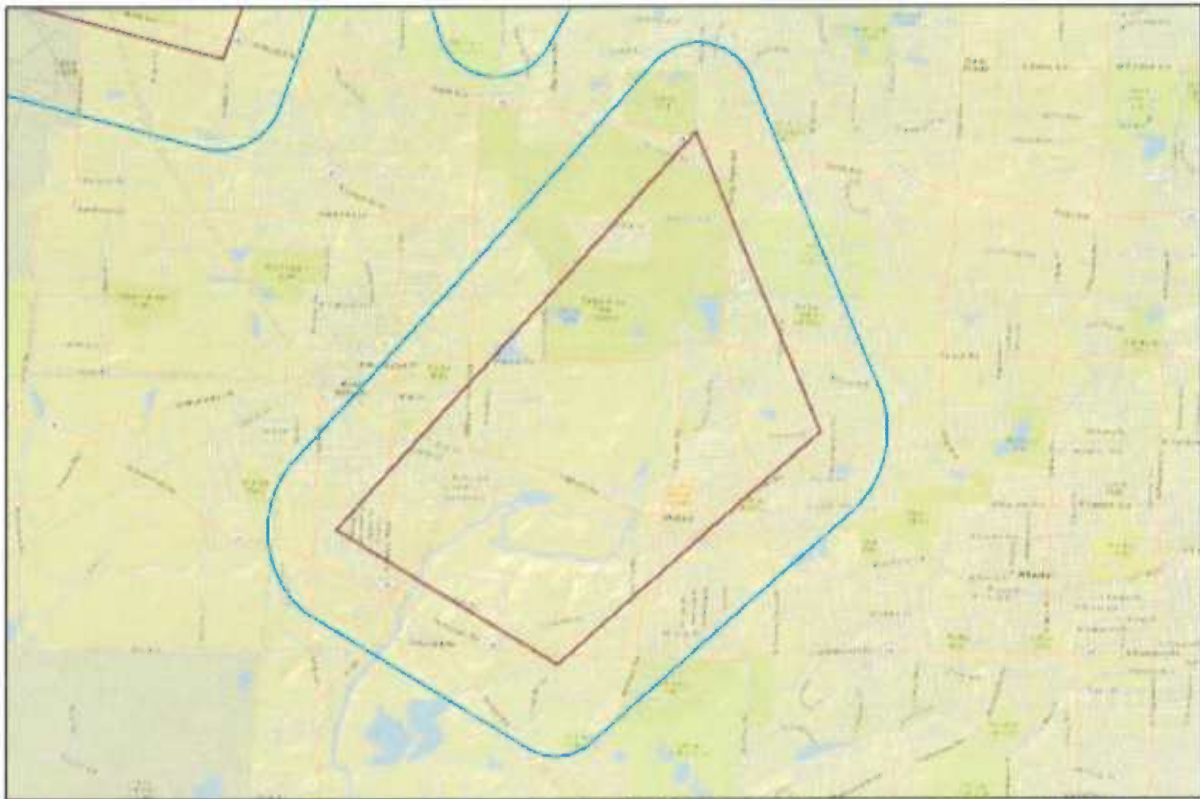




Planned Aerial Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014

Treatment ZONE - Disrupt II - 6g/acre
 West Chicago 1 - Dupage & Cook Counties - 5,443 acres
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Planned Aerial Applications of Mating Disruption for control of the European Gypsy Moth
 Target treatment date: last week of June, 2014
 Treatment ZONE - Disrupt II - 15g/acre - West Chicago 3 - DuPage County 3,683 acres
 Nancy C. Johnson, Gypsy Moth Program Manager
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 815/787.5487



APPENDIX B. CONCERNS AND QUESTIONS FROM PUBLIC OUTREACH

These questions have been asked over the span of the STS program, shaping the program and outreach. Not all of the questions and comments were received in regard to the 2013 program.

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 outside?
Are there any side effects from the fungus or virus?
Are the villages notified about the treatment time and date?
Is the spraying done during the day?
What are the health hazards from gypsy moth?
Besides chemicals, what other hazards are there?

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

What are the health effects on animals and pets?
Will pets be affected by caterpillar fecal material?
How does the spray affect caterpillars?
Will Btk kill large caterpillars?
Will birds and horses be affected?
How will my garden be affected?
What other insects will we take out?
Gypchek is much safer to resident butterflies and moths, why will you not use it?
What other kinds of trees are affected?
Are bees affected by Btk?
Why isn't there anything that eats gypsy moth?
How do deer mice control gypsy moth?
Do bats control gypsy moth?
Do Btk and the fungus affect each other?
Does gypsy moth show resistance to Btk?

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?
If you had the money, would you do a third application?
How can we exert pressure to get more done?
What is a "quarantine"?
What does a "quarantine" mean?
What is Lake County doing for their quarantine?
If I spray and my neighbor doesn't, what will happen?
How much does it cost towns that contribute to the program?
Why does Wisconsin have gypsy moth control problems?
Do you encourage private landowners to spray for gypsy moth?
Can you explain how STS and Forest Service money is used for gypsy moth projects?

Will McHenry County go under quarantine?
Who is responsible for control in quarantine areas?
What is the long-term approach to keep gypsy moth under control?

Issue 4. Likelihood of Project Success

Will gypsy moth go away on its own?
Will we have to live with gypsy moth and how do we?
Are we going to have gypsy moth forever?
How long have they been looking for alternative methods of control?

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.

Why are there no predators or so few predators?
How does Btk 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?
Will keeping trees healthy help?
How do local tree companies know what to do?
Why is gypsy moth so bad here and not in Europe?
Do gypsy moth caterpillars come down the tree every day?
Are traps or burlap more effective?
Where do we get burlap?
When do we spray on our own?
Will the cold winter affect gypsy moth?
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?
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?
Will Btk and pheromone sprays damage car paint?
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 best way to protect my trees? Who do I call?
What is the spacing between sprays of Btk?
How do we use soybean oil?
What is your opinion of soybean oil sprays?
Will soybean oil damage trees?
What are the spot treatments doing?
What is the latest use and consistency of soybean oil?
Are spot sprays used in conjunction with Btk aerial sprays?

What is the pattern of migration for gypsy moth in the United States?
How do you determine that an area is infested?
Where can I get gypsy moth traps? Any recommendations?
How do you destroy egg masses?
What does trap count mean? When does trap count mean you can easily find egg masses?
How do we identify gypsy moth caterpillars?
What is the connection between the number of egg masses and method of treatment?
Does Btk work against eastern tent caterpillar?
Where will pupae be located?
Can you buy products at hardware stores to spray trees?
What product can we use for ground sprays?
Do tree injections work?