

European Gypsy Moth Delimiting

Year:	2017
State:	Washington
Cooperative Agreement Name:	European Gypsy Moth Delimiting
Cooperative Agreement Number:	FAIN: AP17PPQFO000C490
Project Funding Period:	May 1, 2017 – April 30, 2018
Project Report:	Forest Pest Survey Report
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Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

- A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. If reporting on a combined surveys work plan, report accomplishments by survey. When the output can be quantified, a computation of cost per unit is required when useful.***

Objectives - The primary objective of the European gypsy moth (EGM) survey is to protect Washington State's natural and agricultural resources. The survey is integral to the success of WSDA's efforts to keep gypsy moth from finding a permanent home in Washington State. Early detection is critical in preventing establishment through the timely implementation of an eradication program. When these populations are identified at an early stage, the task of eradication is less costly and greatly increases the chances for a successful eradication.

Delimiting trapping surveys are conducted in response to EGM detections that have been found in the previous two years of trapping as well as any new EGM detections in the current trapping season. This method of trapping allows us to pinpoint an introduction site or to monitor an area after an eradication effort.

For the 2017 trapping season, there are twenty-five (25) pre-season delimiting grids that will be trapped in response to EGM catches in 2015 and 2016. Additional delimitation traps will be deployed with moth captures that occur during the 2017 trapping season.

Accomplishments Summary – A total of 2,265 gypsy moth traps were deployed in EGM delimiting grids. The EGM delimiting traps captures 103 moths; DNA genotyping confirmed all moths were of the North American variety of EGM.

Funding Summary - All gypsy moth survey activities in Washington State (EGM Detection, EGM Delimiting, AGM Detection, AGM Delimiting, and Asian Defoliators) are combined in order to efficiently use all available resources. Funding and trap numbers for all surveys statewide have been combined to calculate an accurate cost per unit.

EGM Delimiting Funding Amount, 2017	Total Number of Traps for EGM Delimiting Survey, 2017	Approximate Cost Per Unit for EGM Delimiting Survey, 2017
\$37,344	Proposed = 1,600-1,800	Proposed= \$20.75 - 23.34/trap

Total Gypsy Moth Funding Amount, 2017	Total Number of Traps for all Gypsy Moth Surveys, 2017	Approximate Cost Per Unit, 2017
\$796,079	30,758	\$25.88/trap

1. Survey methodology (trapping protocol):

Approximately 2,265 gypsy moth delimiting traps were deployed. Trap densities vary according to the type of trapping grid and terrain associated with the catch area. Delimiting grids will be trapped at a density of 25 traps per square mile for a single catch site and 64 traps per square mile for multiple catch sites. Both 25 and 64/square mile grids cover four square miles centered on the catch site.

	Common Name	Scientific Name	Survey Method
Target Pest:	European Gypsy Moth	<i>Lymantria dispar dispar</i>	Paper Delta Trap, Green

	Proposed	Actual
Sites (Locations):	Clark County (3 sites) Cowlitz County (1 site) Jefferson County (1 site) King County (8 sites) Kitsap County (6 sites) Kittitas County (1 site) Mason County (1 site) Pierce County (2 sites) Spokane County (1 site) Thurston County (1 site)	Clark County (4 sites) Cowlitz County (1 site) Jefferson County (1 site) King County (8 sites) Kitsap County (8 sites) Kittitas County (1 site) Mason County (1 site) Pierce County (2 sites) Spokane County (1 site) Thurston County (1 site) Whatcom County (1 site)
Traps:	1,600 – 1,800	2,265

Number of Counties:	11
Counties:	Clark, Cowlitz, Jefferson, King, Kitsap, Kittitas, Mason, Pierce, Spokane, Thurston, Whatcom

2. Survey dates:

	Proposed	Actual
Survey Dates:	June 6 – September 29	June 5 – October 25

Each delimiting trap was checked for the presence or lack of presence of gypsy moth on an 8-12 work day rotation during the trap inspection period.

Trap removal was delayed in Kitsap County due to late season live moth captures. All traps were removed by the end of October.

3. Benefits and results of survey:

A total of 117 gypsy moths were captured in 2017. One hundred and three (103) moths were captured in the EGM delimiting traps; all were confirmed through molecular analysis to be the North American variety of EGM.

	Positive	Negative	Total Number
Total Traps	40 traps (103 moths)	2,225 traps	2,265 traps

Table 1. Gypsy moth captures in Kitsap County, EGM delimiting Traps

County	Trap ID	Detection Date	Total Moths	Moth Species
Kitsap	1635817	8/2/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1635838	8/2/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1635840	8/3/2017	2	<i>Lymantria dispar dispar</i>
Kitsap	1635861	8/3/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1635872	8/7/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	107821	8/21/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	107823	8/21/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	107837	8/21/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1660533	8/23/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1661530	8/23/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1660536	8/24/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1660541	8/24/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1660545	8/24/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1617592	8/29/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1635797	8/29/2017	1	<i>Lymantria dispar dispar</i>
Kitsap	1635950	9/14/2017	1	<i>Lymantria dispar dispar</i>

Table 2. Gypsy moth captures in Whatcom County, EGM delimiting traps

County	Trap ID	Detection Date	Total Moths	Moth Species
Whatcom	1499942	8/24/2017	1	<i>Lymantria dispar dispar</i>
Whatcom	1499943	8/24/2017	1	<i>Lymantria dispar dispar</i>

Table 3. Gypsy moth captures in Pierce County, EGM delimiting traps

County	Trap ID	Detection Date	Total Moths	Moth Species
Pierce	1649196	7/26/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649196	7/27/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649218	7/27/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649219	7/27/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649228	7/27/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649284	7/31/2017	2	<i>Lymantria dispar dispar</i>

Pierce	1649286	7/31/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649287	7/31/2017	6	<i>Lymantria dispar dispar</i>
Pierce	1649293	7/31/2017	3	<i>Lymantria dispar dispar</i>
Pierce	1649294	7/31/2017	9	<i>Lymantria dispar dispar</i>
Pierce	1649294	7/31/2017	14	<i>Lymantria dispar dispar</i>
Pierce	1649297	7/31/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649299	7/31/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649190	8/1/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649196	8/1/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649228	8/1/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649294	8/1/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649914	8/1/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649915	8/1/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649916	8/1/2017	4	<i>Lymantria dispar dispar</i>
Pierce	1649917	8/1/2017	6	<i>Lymantria dispar dispar</i>
Pierce	1649917	8/1/2017	3	<i>Lymantria dispar dispar</i>
Pierce	1649915	8/2/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649917	8/2/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649931	8/2/2017	3	<i>Lymantria dispar dispar</i>
Pierce	1649917	8/3/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649923	8/3/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649925	8/7/2017	2	<i>Lymantria dispar dispar</i>
Pierce	1649926	8/7/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649928	8/7/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649925	8/14/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649915	8/15/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649228	8/16/2017	1	<i>Lymantria dispar dispar</i>
Pierce	1649371	8/16/2017	1	<i>Lymantria dispar dispar</i>

In 2016 we had 2 gypsy moth captures in a single trap in Graham, WA that prompted a 64 traps per square mile grid late in the 2016 season and continued in to the 2017 season. Our first capture of 2017 in Graham was on Wednesday 7/26; the number quickly increased to 84 males.

The trap-catch evidence led us to a neighborhood where we found a tree and understory vegetation that was active with emergence, mating, egg laying, and dispersal. It was a unique opportunity to see this kind of activity in Washington. We collected 103 female gypsy moths, an additional 13 male gypsy moths (in flight), 70 pupae casings, 80 larval sheddings, and approximately 65 egg masses.



Figure 1. Reproducing gypsy moth population discovered in Graham, WA on August 1, 2017

To stop the egg laying activity the shrubs and infested material were removed from the site. Infested materials were inventoried and destroyed.

4. Database submissions:

European gypsy moth delimiting data was entered in NAPIS on January 3, 2018. All records were entered at the subspecies level – *Lymantria dispar dispar*.

B. If appropriate, explain why objectives were not met.*

All objectives of the survey were met by the end of the award, April 30, 2018.

C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. *

The financial plan was created using the fringe benefit calculations from the previous year. An unanticipated decrease in the cost of fringe benefits and the change in benefit eligibility for the Agricultural Adie classification resulted in \$618.61 in unobligated funds.

*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51