

Dispersal of Gypsy Moth Pathogens in Muir Woods

Permit 2005-5

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During 2005, we conducted studies of dispersal of gypsy moth pathogens at numerous sites in central Wisconsin, one of these being in Muir Woods. We caged gypsy moth larvae at the bases of oak trees and at 1.5 m in the canopy. Larvae were caged in window screening cages and were left in the field for 4 days at a time. We placed hardware cloth cages over the caged larvae so that any marauders (e.g., raccoons, etc.) could not open cages. After 4 days in the field, larvae were reared indoors to detect infection by gypsy moth-specific fungal and viral pathogens. Cages were placed in the field around 5 oak trees from June 28-July 2 and July 2-July 6, with 20 3rd-4th instar gypsy moth per cage for each field exposure. In addition, samples of the surface soil were taken from the bases of 5 trees on June 22. On June 22, 26 and July 3, we collected living gypsy moth larvae for rearing to detect infection plus cadavers to diagnose cause of death. We were surprised to find the levels of fungal infection (by *Entomophaga maimaiga*) that we did! Gypsy moth virus was present but at with few infections.

Field collected larvae that were reared

	Totals	<i>Entomophaga maimaiga</i>	Nucleopolyhedrovirus
6/22	18	1	0
6/26	23	12	1
7/3	35	6	2
Total	76	19 (25%)	3 (4%)

Field collected cadavers

	Totals	<i>Entomophaga maimaiga</i>	Nucleopolyhedrovirus
6/22	39	28	0
6/26	11	6	1
7/3	35	35	0
Total	85	69 (82%)	1 (1%)

Gypsy moth larvae caged in the field:

Date put in field	Description	n	# conidia only	# RSP only	# both	total <i>E.</i> <i>mamaiga</i>	% <i>E.</i> <i>mamaiga</i>	Total NPV	% NPV
28-Jun-05	uncovered on ground	86	19	0	0	19	22.1%	1	1.2%
28-Jun-05	covered on ground	92	10	2	1	13	14.1%	0	0.0%
28-Jun-05	hanging in tree	56	0	0	0	0	0.0%	0	0.0%
2-Jul-05	uncovered on ground	70	8	1	1	10	14.3%	1	1.4%
2-Jul-05	hanging in tree	73	0	0	0	0	0.0%	0	0.0%

For larvae caged on the soil, among those exposed only to resting spores of *E. maimaiga*,

We exposed several sets of larvae to soil samples but no infection was documented.

2006: We would potentially like to repeat studies in Muir Woods during the 2006 field season. They would consist of exactly the same manipulations which would occur during the month of June (preferably slightly earlier than this last year).