

GYPSEY MOTH SURVEILLANCE PROGRAMME ANNUAL REPORT

Gypsy moth, *Lymantria dispar*, is a severe defoliator of trees and is described as both an economic and environmental high-impact pest. A major outbreak of gypsy moth in New Zealand could severely impact the horticulture, forest and tourism industries and might also affect the indigenous flora.

It was recognised that high-risk pathways existed for the accidental importation of gypsy moth from other countries, such as international shipping, imported used vehicles and cargo containers. Thus in 1992 the Gypsy Moth Surveillance Programme (GMSP) was developed to provide early warning of gypsy moth incursions, to facilitate eradication and assist with assurance of New Zealand's status as a country free from gypsy moth. To achieve this the GMSP conducts seasonal monitoring with pheromone traps placed on specific hosts at strategic locations, and a communication programme is carried out using letters, leaflets, cards and reports to promote the biosecurity message about this unwanted species.

AsureQuality has delivered the GMSP, both as part of MAF and for MPI, for almost 20 years.

Trapping

The surveillance season runs from November to May. Pheromone traps are placed in cells making up a grid that is strategically located in areas regarded as high risk for an incursion of gypsy moth. Each cell measures 750 x 750 metres and contains a single pheromone trap for the duration of the surveillance season. The minimum size of each grid is two adjacent cells. In coastal areas a buffer is used to intercept any moths that might fly to land from nearby vessels, and it is only one grid cell in width. The distribution of surveillance locations throughout New Zealand is shown in **Figure 1**, and an example of a grid overlying a topographical map is shown in **Figure 2**.

Within each cell, a host tree is selected for trap placement, using a hierarchical ranking of the most suitable host trees, as close to the grid centre as possible. The traps are attached to the trunk or a branch of a suitable host tree (or, rarely, an artificial structure) and are located 1.3–2 metres above the ground. Each trap is a green delta trap with two sticky internal sides and is clearly labelled “Gypsy Moth Trap”, displaying both MPI and AsureQuality logos, and a freephone contact number.



Figure 1: Distribution of New Zealand trap sites for gypsy moth surveillance.

Each trap contains a commercial disparlure pheromone lure to attract male gypsy moths. Lures are independently tested and calibrated before each surveillance season and are replaced once during the season, after they have been in the field for 12–14 weeks.

Measures are in place to ensure the programme is robust. New traps are used at the start of each season and all traps and lures are destroyed within two weeks after the end of the season. To avoid sampling bias, gypsy moth traps are not placed in trees bearing any other pheromone traps. Traps are replaced immediately if they are recorded as missing or deemed by the trapper to be significantly damaged.

Trappers attend annual refresher courses on trap-servicing procedures and any changes of procedure.



Figure 2: Example of a trapping grid overlying a topographical map, Rotorua. Each cell within the grid measures 750 x 750 metres.

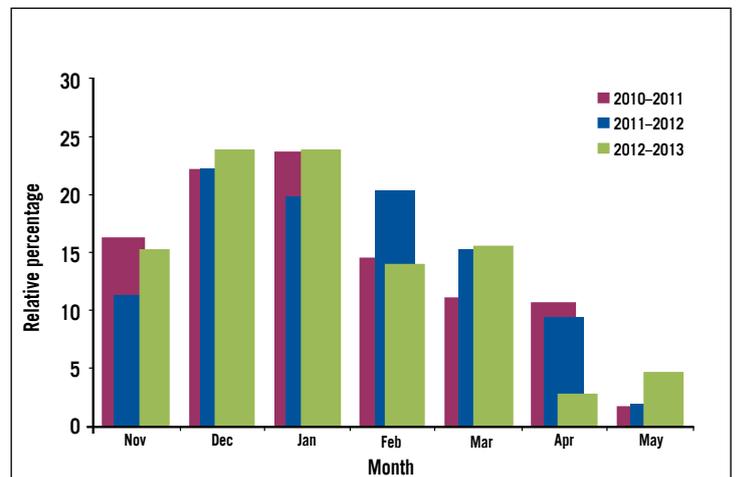


Figure 3: Percentage of gypsy moth sample submission events by month

The largest fraction of submissions (24 percent) was made during December and January (**Figure 3, Table 1**).

The relative percentage of sample submission events made per month over the trapping season is shown in **Figure 3**. The majority of submissions are from December to January, with about 24 percent of the total made in each of those months. The number of samples submitted diminishes going into autumn (April and May). **Table 1** shows the number of samples submitted each month by region. The lower North Island appears to consistently make the most submissions almost every month. Moths collected in May in the Waikato/Bay of Plenty region were mainly from marked specimen collections. No gypsy moths were found during the entire season.

Moth specimens submitted were mainly of the family Noctuidae. Other moth families represented in the samples collected included: Tortricidae (10 percent), Geometridae (9 percent), Oecophoridae (4 percent), Crambidae (8 percent), Tineidae (1 percent), Arctiidae (2 percent), Pyralidae (< 1 percent), Hepialidae (2 percent) and miscellaneous (11 percent)

The 2012–2013 surveillance season was a success in terms of meeting the programme’s objectives. No new incursions of gypsy moth were recorded. Large numbers of samples were collected and submitted for taxonomic determination and the samples were obtained by a scientifically robust grid-based sampling process.

Results

The gypsy moth trapping season ran from 1 November 2012 until 11 May 2013. The number of traps per run ranged from four to 81 (mean = 41), with a total deployment of 1525 traps. A trap run is a series of traps within a geographic area that are serviced by one trapper and the number of traps in a trap run varies from four to 81. Any suspect moths were submitted to the Scion diagnostic laboratory for identification to family level. Combining the trap run data across the season gave a total of 20 826 trap servicing/inspection events.

In total there were 243 suspect moths submitted. The lower North Island recorded the highest number of submission events (63, or 41 percent of the total) and the highest number of suspect moths (102, or 42 percent) (**Table 1**).

TABLE 1: NUMBERS OF SUBMISSION EVENTS AND SUSPECT SAMPLES SUBMITTED DURING THE 2012–2013 SURVEILLANCE SEASON, BY REGION

NUMBER OF SAMPLES SUBMITTED BY MONTH									
REGION	NUMBER OF SUBMISSION EVENTS	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
Auckland/Northland	48	19	29	20	8	3	3	0	82
Waikato/Bay of Plenty	20	1	4	4	7	4	1	5	26
Lower North Island	63	16	17	25	15	21	2	6	102
South Island	23	1	8	9	4	10	1	0	33
Total	154	37	58	58	34	38	7	11	243

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