

# GYPSY MOTH MALES REACTION TO DIFFERENT PHEROMONE CONCENTRATIONS IN SPARSE AND DENSE POPULATIONS

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## ABSTRACT

The Asian race of the gypsy moth (GM) (*Lymantria dispar* L.) is the main pest of larch (*Larix*) forests of Mongolia. Variation between habitats in this mountainous country is so high that there is usually no problem in finding insect populations at different stages within a few hours of driving. We worked with two populations of GM. The sparse population was located in the wide valley of the Selenga River covered by *Salix* and *Ulmus* species with larch forests on the slopes of surrounding hills. There were no signs of foliage damage, and we failed to find any larvae and pupae in the tree crowns. An outbreaking GM population was found 200 km southeast of the Selenga River in the Khan-Dzhargalatyn-Uver Valley. The northern slopes of the hills were covered by larch with intensive current-year defoliation. There were a lot of pupae in the tree crowns.

We analyzed responses of GM males to pheromone traps baited with five + disparlure doses of 1, 10, 100, 1,000, and 5,000 micrograms per lure. Cotton swabs with pheromone were prepared in the Otis laboratory and mailed by DHL to Mongolia. The sealed lures were opened and used for only 3 days of experimentation each.

At the beginning of August during GM flight in each habitat, a line of 30 pheromone traps was set (5 traps with each of 5 doses + 5 blank traps). Traps were located in an ABCDEFABCDEF, etc. sequence with 30 to 50 m between traps. We sampled for 3 days in each habitat. We collected moths daily and moved each trap to the next location in the sequence, decreasing influence of relief and stand features on captures.

The reaction of GM males from Mongolian populations on + disparlure was significantly influenced by both population density and pheromone concentration in lures. GM males from the dense population preferred high doses of pheromone (100 and 1000 mcg). In the sparse population, they preferred a lower dose of 10 mcg. Both population density ( $F=17.3$ ;  $P=0.0002$ ) and pheromone dose ( $F=3.4$ ;  $P=0.02$ ) had a significant impact on the captures (two-way ANOVA). The interaction of the factors was also significant ( $F=5.0$ ;  $P=0.002$ ).

The practical outcome of this experiment is promising. This approach may be used to check the gradational status of pest population between outbreaks.