

Asian gypsy moths and Alaska

by Jacquelyn Schade¹



Figure 1: Asian gypsy moth, adult female in Mongolia by John H. Ghent, USDA Forest Service, Bugwood.org, <http://www.forestryimages.org/browse/detail.cfm?imgnum=1241013>

Each year, the Alaska Division of Agriculture conducts Cooperative Agricultural Pest Surveys (CAPS) which are funded through cooperative agreements with the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS).

The CAPS is a National program of APHIS and is active in all 50 states. The purpose of the program is to help safeguard agricultural and environmental resources by early detection of harmful pests and diseases before they are established. The Alaska CAPS Program facilitates the detection of plant pests through surveys, outreach, educational

activities and interagency partnering. Alaska has been involved with the CAPS program since the early 1980's.

Since the early 1990's, Alaska has been conducting the Asian Defoliating Moth (AGM) Survey through the CAPS program. This survey primarily searches for the Asian Gypsy moth, but also searches for Rosy Gypsy moth, Siberian Silk moth, and the Nun moth.

Asian defoliating moths are considered among the most important commercial pests in their native range. Their native range extends roughly from Europe to parts of Asia, to include the far east of Russia and other East Asian countries. Outbreaks occur periodically in their native ranges resulting in extensive areas of defoliation. Asian gypsy moths are highly invasive pests to areas where they are not native.

Alaska is considered high risk of AGM introduction due to the high volume of marine traffic we receive from Asia and Russia. During the 2014 shipping season, Custom Border Protection (CBP) and APHIS-Plant Protection and Quarantine (PPQ) Officers intercepted thousands of viable egg masses on vessels arriving from China, Russia, Japan and Korea destined to multiple US Ports. In Alaska, Asian gypsy moth interceptions occurred on vessels in both 2012 and in 2008 near the port of Ketchikan. In 2015, Western Washington intercepted eight Asian gypsy moths and Oregon intercepted two Asian gypsy moths in traps. These interceptions were the first catches in traps since 1999 and demonstrate Alaska's susceptibility to Asian gypsy moth establishment.



Figure 2: Asian gypsy moth, adult male in Mongolia by John H. Ghent, USDA Forest Service, Bugwood.org, <http://www.forestryimages.org/browse/detail.cfm?imgnum=1241014>

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Figure 3: Asian gypsy moth, larva in Mongolia by John H. Ghent, USDA Forest Service, Bugwood.org, <http://www.forestryimages.org/browse/detail.cfm?imgnum=1335025>

Alaska's forest products, wildlife, and tourist industries represent a significant portion of the state's resources and would be at risk should Asian gypsy moths become established. These resources depend on our healthy forests. Alaska has approximately 129 million forested acres throughout the state that contain host species of these exotic pests, to include species in the genera *Alnus* (alder), *Populus* (aspen), *Betula* (birch), *Salix* (willow), *Larix* (larch), *Sorbus* (mountain ash), *Pinus* (pine), *Picea* (spruce), *Abies* (true fir), and *Tsuga* (hemlock).

Adult male Asian gypsy moths have a wingspan of 1.5 inches, and their wings are greyish-brown. Adult female Asian gypsy moths have a wingspan of 3.5 inches or more, and their wings are white. The females also have distinctive black markings on their wings.

Asian gypsy moths have one generation per year. The female Asian gypsy moth has the ability to fly approximately 25 miles per year. This rapidly increases the Asian gypsy moth's range each year. Female Asian gypsy moths lay 100–1,000 eggs in one egg mass. They are attracted to light and will often deposit their egg masses near light sources on walls, trees, and light poles. They will also lay

their eggs in cracks or crevices on rock outcroppings, or slabs of steel that could be bound for export. The Asian gypsy moths lay their eggs between July and September.

Eggs hatch anywhere from late April to early May; where the larvae disperse to host plants by ballooning. Ballooning is the process where the larvae drop on a silk thread from a branch and use air and wind currents to "balloon" to another location. The male Asian gypsy moths generally have 5 instars, while the females have 6. The larvae will feed at night and rest in protected areas on their host during the day. The larval stage is the stage that causes significant damage to host trees and can devastate large forested areas in one generation.

Pupation occurs on the host's foliage or litter and lasts for 10–14 days. When the adults emerge, they do not feed. The male Asian gypsy moths' sole purpose is to mate and lay eggs. Adults only live for 1 to 3 weeks and are active from July to August.

If you suspect that you have Asian gypsy moths in your trap catches or area, contact Jacquelyn Schade at Jacquelyn.Schade@alaska.gov or 907-761-3858.



Figure 4: Asian gypsy moth, eggs in Mongolia by John H. Ghent, USDA Forest Service, Bugwood.org, <http://www.forestryimages.org/browse/detail.cfm?imgnum=1335003>