GRAPE MEALYBUG: *Pseudococcus maritimus* (Ehrhorn)
Order – Hemiptera/Homoptera; Family - Pseudococcidae

The identity of *P. maritimus* and *P. obscurus* is surrounded by much confusion. Most of the literature about *P. maritimus* would also pertain to *P. obscurus*.

DISTRIBUTION - *P. maritimus* is a native species of mealybug which occurs throughout most of the United States and Canada.

DESCRIPTION - The adult female body is yellow to orange in color and covered with a gray wax. The margin of the body has 17 pairs of thin lateral filaments. The caudal pair is about one-fourth the length of the body. An ovisac is produced that encloses all but the head of the mealybug.

HOSTS - *P. maritimus* has a wide host range. It occurs naturally on the roots or the tops of clover, elder, buckeye, eriogonum, malva, nightshade, wild sunflower, and willow. It also occurs on various cultivated varieties of plants, which include: alfalfa, apple, California poppy, columbine, canary dale palm, carnation, grevillea, English ivy, ginkgo, European grape, laburnum, lemon, orange, Mexican orange, passion flower, pear, potato, potatovine, Japanese quince, strawberry, English walnut, and all species of Japanese yew (*Taxus*).

DAMAGE - Mealybugs may become so abundant that they cover the trunk and the principal branches of a plant, and occur in masses where the twigs branch. Their feeding on the branches cause the plant to decline. In heavy infestations, the infested sites of the plant are white and distinctly noticeable. Infested plants tend to have sparse yellow foliage and a stunted, darkened appearance due to the presence of sooty mold growing in the honeydew exuded by the mealybugs.

LIFE CYCLE - (Northern lllinois). The nymphs of *P. maritimus* overwinter within the white, fibrous debris of the egg mass. As the weather warms during the spring (April), the nymphs begin to feed on the host plant. They continue to feed and develop through the month of May, and by June, they become adults. During June, the adults secrete a white, fibrous material in which the eggs are deposited. The first generation eggs begin to hatch during the end of June and continue to hatch through mid-July. As the nymphs emerge, they leave their egg masses and begin to feed on the foliage of the host plant. Some of these nymphs will develop into the adult stage by late August. Second generation egg deposition begins during early September and may continue into the fall. Nymphs continuously hatch from these eggs until the cold weather arrives. The nymphs remain within the confines of the egg mass throughout the winter. Most if not all of the eggs, which did not hatch before the arrival of cold weather, wither during the cold winter months.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
[--Nymphs in cottony mass--]											
			[- Feeding nymphs -]								
					[-----] Eggs						
						[---------Feeding nymphs-----]					
								[-----] Eggs			
										[----Nymphs in cottony mass----]	
Observed at: Northern Illinois						General Rule: +/- 1 week for each 60 miles change in Latitude					

INSPECTION TIPS - (Northern Illinois)

- Any *Taxus* species may be infested.
- From November through March, look for the evidence of egg mass debris. The "old" egg mass debris should be present, primarily in the stem crotches. Overwintering nymphs may be found within the debris. Most of the eggs found in the egg mass should appear in a withered, non-viable state, especially towards late winter.

- During April, May, and into early June, nymphs disperse from the egg masses to feed and develop. During this time, the nymphs may be found anywhere on the plant, but seem to be more commonly found on the bark surfaces of branches within the areas of dense needle foliage. During this time period, the "old" egg mass debris will be evident.

- During June, the nymphs are developing into adults, at which time they begin to lay yellow eggs within white, fibrous masses produced by the female. Egg masses may be formed anywhere on the host plant, but more commonly, appear within the areas of dense needle foliage.

- From late June through mid July, the freshly deposited first generation eggs are hatching. The hatching nymphs disperse throughout the plant's foliage to feed.

- The nymphs begin to reach the adult stage by late August. Soon afterwards, second generation egg masses are deposited and the nymphs begin to hatch. Egg deposition and nymph emergence continue through the fall until the cold weather arrives. The nymphs remain within the confines of the egg mass to overwinter.

CONTROL TIPS - (northern lllinois)

- Control results are strictly dependent upon adequate spray coverage. The insecticide must reach the bark surface of the infested plant.

- Treatments are most effective when applied during the spring (late April through mid May) while the overwintered nymphs are feeding and developing. During this time it is possible to attain significant control results with only one treatment.

- Once egg depostion begins in June, control treatments 'are much less effective. Throughout the summer months, adult females and eggs are present much of the time; thus, control results are incomplete.

- During the fall, before the arrival of cold weather (late September through October), exits another opportunity to treat, however, the results are not nearly as effective as those applied during the spring. This is because the nymphs that are about to over-winter remain within the confines of the egg mass, thus making it difficult to reach them with an insecticide.

RELATED SPECIES -
It is important to recognize that there are a few different mealybug species which may infest Taxus (Japanese yew) plants.

1 - *Dysmicoccus wistariae* (Green)
- viviparous method of reproduction
- overwinters as a nymph under the bark scales
- old name was Pseudococcus cuspidatae Rau

2 - *Pseudococcus comstocld* (Kuwana)
- oviparous method of reproduction
- overwinters as an egg within the ovisac

3 - *Pseudococcus maritimus* (Ehrhorn)
- oviparous method of reproduction
- overwinters as a nymph under the "old" egg mass debris

4 - *Pseudococcus obscurus* Essig
- oviparous method of reproduction
- overwinters as a nymph under the "old" egg mass debris

REFERENCES –

Appleby, J.E. Taxus Mealybugs. Illinois State Nurserymen's Association Newsletter. Natural History Survey, Urbana, Illinois

Essig. 1926. Insects of North America. Reprinted June 1948.

U.S. Department of Agriculture, Forest Service. 1985. Insects of Eastern Forests. Misc. Pub1.1426. Washington D.C. 608 pp.

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PHOTOGRAPHS -

Adult (Right) --- Todd Voss, Iowa. 2002.

Adults & Eggs (Bottom) --- William McAdams, (Iowa). Central States Nursery Inspectors Guide (1st Printing)

Egg masses and debris --- William McAdams, Iowa.