TPE's RECOMMENDED RESPONSE TO CRAPEMYRTLE BARK SCALE, 9/19/2023

As drafted by Dr. Karin Burghardt, Committee for Trees, Parks, and Environment, UP, and Assistant Professor, University of Maryland, Department of Entomology.

Crape myrtle trees are very popular ornamental trees in UP. They are typically low maintenance and have beautiful showy blossoms in midsummer that provide resources for pollinators and seed for birds in the fall. Unfortunately, two serious pests of crapemyrtle from their eastern Asian native range have also arrived in Maryland - crapemyrtle aphid (CMA) and crapemyrtle bark scale (CMBS) - and as a result, it is unlikely that these trees will be "pest-free" or "low-maintenance" for the foreseeable future.

Both pest species are piercing-sucking insects that sip sugary plant sap and excrete a clear, sticky liquid called honeydew. Honeydew accumulates on the leaves, bark, and even the sidewalk beneath the tree and is then colonized by airborne fungal spores that turn black, creating a coating on the tree called sooty mold. This presence of sooty mold, the white egg sacs of scale on the trunk and bark crevices (CMBS only), and ants scurrying up and down the tree to tend to aphids or scale and eat the honeydew are often the first signs of an infestation that a homeowner notices.

The first CMBS were found in Maryland in 2020 but have been slowly moving North from Texas, where they were initially introduced. TPE located them in 2022 in UP and has been monitoring them ever since. This summer, their numbers increased rapidly and have been found on crape myrtles in yards and town street trees. In a survey of 38 trees across town- 29 had some evidence of CMBS. Females of these critters are wingless, so they are primarily moved long distances by folks planting already-infested trees from nurseries. Short-distance dispersal happens during their just-hatched crawler stage when they can be moved by animals (squirrels, birds, or humans via the maintenance equipment of landscapers as they move from house to house) which is one of their only life stages they are vulnerable to sprays of soap and oil. As a result, it is highly likely that if you have a crape myrtle in your yard, it will eventually be colonized by one or both of these new pests.

As long as crape myrtle trees are otherwise healthy and living in proper cultural conditions, the primary damage from aphids and bark scale is aesthetic rather than severely harmful to the tree although you may see some branch dieback in severe outbreaks. Unfortunately, because many residents grow these trees for beauty, the levels of sooty mold and decreased flowering rate might be unacceptable to some.

So what can you do? We can look for guidance to experience from some areas of the country that have been dealing with this pest for longer. They agree that it is a difficult pest to control, but some options are emerging to decrease but not eliminate damage:

(1) **Cultural control**- ***avoid planting new crape myrtles***. Keep the ones you do have watered during intense drought periods, mulched with organic material like leaves or wood mulch, and possibly fertilized if a soil test suggests it is needed. If you can't handle the aesthetics of CMBS, consider replacing you tree with a different species (UP's understory tree list can help!).

(2) **Use naturally occurring biological control by encouraging beneficial enemies**- While CMBS is not a native insect to Maryland, some predators ARE eating this pest and building up large populations in infested trees. We are seeing a large number of lady beetle (Fig. 1) and nerve-wing larvae feeding on these insects on trees in UP, and over time, they may be able to decrease the pest to a lower level. You can encourage these beneficial insects by avoiding insecticide treatments for surrounding turf and mosquito treatments that fog vegetation and kill beneficial insects eventually building up a community of beneficials. Often, invasive insects will initially boom in populations (think Brown

marmorated stink bug in the early 2000s) before eventually decreasing in numbers as other players in the ecosystem adjust to their presence and figure out they are tasty.

(3) **Mechanical approaches-** scrub off sooty mold from trunks or using medium-pressure spray to dislodge egg masses over the winter.

(4) **Chemical controls**- The only low environmental-impact chemical approach shown in studies to be effective is applying a dormant rate of horticultural oil to the trunk and twigs *over the winter* when the tree does not have leaves. This will kill overwintering insects and have the advantage of likely having a decreased negative impact on beneficial insects like ladybeetles because the oil does not stick around for a long time. If you want to do a lower rate of horticultural oil or soap application during the growing season you must time the sprays to coincide with the emergence of the tiny crawlers from the eggs. This is challenging to do right now because we do not even know how many generations per year the pest has in Maryland (under study).

Not recommended: Many internet sources and insecticide trials suggest soil drenches of systemic insecticides like neonicotinoids as the most effective approach to killing the pest. However, these high environmental impact pesticides are taken up by the crape myrtle tree roots and expressed in all of the plant tissues, and studies show that they need to be applied year after year for the foreseeable future to prevent a pest resurgence. All parts of the plant are then poisonous, sometimes for over a year, and can poison pollinators, beneficial insects like lady beetles, and other non-target herbivores that visit the flowers and feed on pollen and nectar during the beautiful flowering period each year. Xerces Society has more detailed information on the potential impacts of these pesticides, but in general, they are not in line with the sustainability goals of UP. Control of this pest is an active area of research, and we will keep you posted on any new developments. Please also reference this topic via University of Maryland Extension.

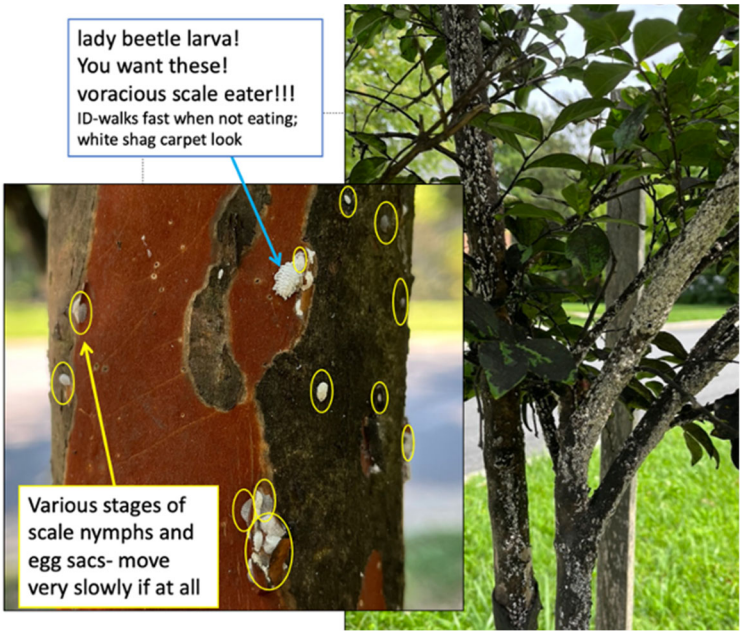

Fig. 1: An infested crape myrtle tree on the corner of Queens Chapel and Underwood St, in University Park, MD. The inset photo shows yellow circles around immature CMBS scale insects that are pale gray and white adult female insects that produce egg sacs under their bodies that can hatch with up to 4 generations in a summer (still TBD). The blue arrow points to a white fluffly lady beetle larva that gobbles CMBS and suggest that you have a population of biological control agents on the case.