

Crapemyrtle Aphid, *Tinocallis kahawaluokalani* (Kirkaldy) (Insecta: Hemiptera: Aphididae)¹

John Herbert and Russ F. Mizell²

The Featured Creatures collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

Introduction

The crapemyrtle aphid, *Tinocallis kahawaluokalani* (Kirkaldy), is the most important insect pest of crapemyrtle *Lagerstroemia* spp. in the United States. Although native to southeast Asia, crapemyrtle aphid was described by Kirkaldy from specimens collected in Hawaii. In the United States, crapemyrtle aphids are monophagous, feeding exclusively on crapemyrtle, and do not attack or damage other plant species. Heavy infestations may cause cosmetic damage that detracts from the visual aesthetics of crapemyrtle, but feeding has not been shown to have long term effects on plant health or vigor.

Synonymy

Sarucallis kahawaluokalani (Kirkaldy)

Distribution

Crapemyrtle aphids are distributed throughout the tropics, India, China, Korea, Japan, southeastern United States, Hawaii, and anywhere crapemyrtle is grown.

Description

Insects in the order Hemiptera have incomplete or gradual metamorphosis, where the nymphal or immature stages appear as small adults without wings. Crapemyrtle aphids are minute insects, and identifying characters are best seen with the aid of a stereomicroscope.

Nymphal stages of the crapemyrtle aphid are pale to bright yellow with black spike or hairlike projections on their abdomen. Adults are also yellow in color but differ from nymphs in having black spots and two large black tubercles on the dorsal surface of the abdomen. Unlike other aphid species that produce winged forms as a result of environmental or reproductive stimuli, all adult crapemyrtle aphids bear wings that are held rooflike over the body and mottled with black markings.

Biology

The life cycle of the crapemyrtle aphid is holocyclic; meaning it consists of both asexual and sexual reproduction. Eggs hatch in early spring when leaf buds break and all aphids that emerge from these eggs are female (fundatrix). After developing into an adult, the fundatrix reproduces through a form of asexual reproduction known as parthenogenesis and gives live birth to female nymphs (virginoparae). Subsequent generations of aphids are also referred to as virginoparae and produce all female offspring through parthenogenesis during spring and summer.

1. This document is EENY365, one of a series of the Department of Entomology and Nematology, UF/IFAS Extension. Original publication date February 2006. Revised September 2024. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication.
2. John Herbert and Russ F. Mizell, Department of Entomology and Nematology; UF/IFAS Extension, Gainesville, FL 32611.



Figure 1. Adult and nymphal crapemyrtle aphids, *Tinocallis kahawaluokalani* (Kirkaldy), on the adaxial side of the leaf of 'Apalachee' crapemyrtle (*Lagerstroemia indica* x *Lagerstroemia fauriei*). Credits: John Herbert, UF/IFAS



Figure 3. 'Apalachee' crapemyrtle (*Lagerstroemia indica* x *Lagerstroemia fauriei*) with a crapemyrtle aphid, *Tinocallis kahawaluokalani* (Kirkaldy), infestation that has reached damaging levels. Credits: John Herbert, UF/IFAS



Figure 2. Adults, nymphs, and cast skin (exuviae) of the crapemyrtle aphid, *Tinocallis kahawaluokalani* (Kirkaldy). Credits: UF/IFAS

When photoperiod and temperature decrease in the autumn, virginoparae give birth to a generation of aphids that produce both male and female aphids (sexuparae). Female offspring of sexuparae (oviparae) mate with males and produce eggs. Oviparae produce four to six eggs and place the eggs in crevices located on the bark of crapemyrtle stems. Overwintering eggs will hatch the following spring in response to temperature and photoperiod stimuli.

Crapemyrtle aphids have four nymphal stages (instars) before developing into adults. Development time is dependent on ambient temperature, and under optimal conditions, crapemyrtle aphids can develop from first instar

nymph to adult in five days. Adults give live birth to first instar nymphs that began developing within their mother when she was a nymph. Therefore, each virginoparae adult is capable of producing offspring upon emergence and can produce six or more offspring within 24 hours of becoming an adult. Adults may live as long as 14 days and produce over 150 offspring in their lifetime. Under optimal conditions, aphid populations grow at astonishing rates due to the high levels of fecundity and low development times. Aphid populations are commonly ignored or escape detection until they have reached damaging levels.

Damage

Crapemyrtle aphids damage crapemyrtle cosmetically and are not known to vector any plant diseases. Damage to crapemyrtle is an indirect result of aphid feeding and does not result in permanent damage or long-term effects on plant vigor. Crapemyrtle aphids feed on phloem sap in which the primary constituents are sugar and water. The proportion of nutrients to sugar and water within the phloem is extremely low, but aphids have evolved a mechanism that allows them to utilize the trace amounts of nutrients within the phloem.

Amino acids and other essential nutrients are separated with a special filter chamber located in the gut, and excess sugar and water are excreted from the body as small sugary droplets called honeydew. Crapemyrtle aphids eject honeydew away from their feeding location preventing them from becoming entangled within the sticky secretion. Honeydew accumulates on objects below aphid populations and is commonly seen as a shiny coating on the tops of leaves and stems. Molds and other microorganisms can grow on these surfaces, utilizing the rich sugary honeydew as a food source.

Black sooty molds are fungi that grow on honeydew produced by aphids or other phloem-feeding insects. *Capnodium* is a genus of fungus that has a species associated exclusively with crapemyrtle aphid honeydew. This fungus species is not yet described and therefore is known only as *Capnodium* sp. Black sooty mold can turn the entire plant an unsightly black color detracting from the visual aesthetics of crapemyrtle. When aphid infestations are severe, thick carpets of black sooty mold interfere with photosynthesis and may cause early leaf drop or complete defoliation of affected plants. However, defoliation is unlikely to affect long-term plant health or vigor and plants typically rebound and bloom beautifully in the following years.



Figure 4. 'Apalachee' crapemyrtle (*Lagerstroemia indica* x *Lagerstroemia fauriei*) covered with black sooty mold as a result of aphid honeydew. Credits: John Herbert, UF/IFAS

Management

Ladybird beetles (Coccinellidae), green lace wings (Chrysopidae), flower fly larvae (Syrphidae), and generalist insect predators attack crapemyrtle aphids. Larvae and adults of the **multicolored Asian lady beetle**, *Harmonia axyridis*, feed on large quantities of crapemyrtle aphids and provide natural control when aphid numbers are low. However, aphid populations often escape the control of natural enemies near the end of July and early August in Florida.

Alternative tactics for controlling crapemyrtle aphids are insecticidal soaps or systemic insecticides. Insecticidal soaps can be used to control heavy aphid infestations but should be used only when aphid populations have

escaped natural control and as a last resort. If applied with the proper timing and dosage, systemic insecticides may prevent the formation of aphid populations.



Figure 5. The multicolored Asian lady beetle, *Harmonia axyridis*, after eclosion (emergence) as an adult. Pupal skin can be seen on the leaf surface.

Credits: John Herbert, UF/IFAS

Ecological Interactions

Crapemyrtle aphid populations can increase the number of insect natural enemies within the landscape and are a valuable resource for many aphid and generalist predators. For example, green lacewings are important for controlling economically important aphid pests such as pecan aphids. Lacewings can use crapemyrtle aphids as an alternative food source when the number of pecan aphids becomes scarce allowing populations of lacewings to remain high. Pecan aphids typically exhibit resurgence in the fall when crapemyrtle aphid populations begin to diminish, and thus, aphid predators can return to pecan orchards offering greater control of pecan aphids. Insect natural enemies that are not aphid predators can also benefit from low to moderate aphid populations.

Predaceous Hymenoptera such as paper wasps (Vespidae), Sphecid wasps (Sphecidae), ants (Formicidae), and parasitoids use honeydew as an adult energy resource. Studies indicate that adult Hymenoptera have increased longevity and foraging efficiency when provided with a source of sugar like honeydew. Contrary to popular belief, wasps can be extremely beneficial in the landscape for controlling insect pests. Paper and Sphecid wasps prey on caterpillars, spiders, and other arthropod pests that are commonly found in backyards and gardens. Ecological interactions are

important considerations before deciding on a management practice. Insecticidal sprays and soaps do not generally discriminate between predator and prey, and thus, should only be used when absolutely necessary.

Selected References

Alverson DR, Allen RK. 1991. Life history of the crape-myrtle aphid. Proceedings of the SNA Research Conference 36: 164–167.

Alverson DR, Allen RK. 1992. Bionomics of the crapemyrtle aphid (Homoptera: Aphididae). *Journal of Entomological Science* 27: 445–457.

Alverson DR, Allen RK. 1992. Suitability of Natchez vs. Carolina Beauty Crape-myrtle cultivars as hosts for the crapemyrtle aphid. Proceedings of the SNA Research Conference 37: 160–162.

Mizell RF III, Schiffhauer DE. 1987. Seasonal abundance of the crapemyrtle aphid, *Sarucallis kahawaluokalani*, in relation to the pecan aphids, *Monellia caryella* and *Monelliopsis pecanis* and their common predators. *Entomophaga* 32: 511–520.

Mizell RF III, Knox GW. 1993. Susceptibility of crape-myrtle, *Lagerstroemia indica* L., to the crapemyrtle aphid (Homoptera: Aphididae) in North Florida. *Journal of Entomological Science* 28: 1–7.

Mizell RF III, Bennett FD, Reed DK 2002. Unsuccessful search for parasites of the crapemyrtle aphid, *Tinocallis kahawaluokalani* (Homoptera: Aphididae). *Florida Entomologist* 85: 521–523.