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The blue-green citrus nibbler

ADRIAAN SERFONTEIN AND KARLIEN GROBLER

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A visitor amongst us

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Background

Chrysomelids, commonly known as leaf beetles, belong to one of the largest families of the order Coleoptera, the Chrysomelidae family. Insects in this family show great diversity, and variation in colour, shape and size. Adults and larvae of these species are mostly herbivorous, with few species known to be host-specific (Vela et al., 2014). Some chrysomelids have been used around the world as biological control agents of alien invasive weeds (e.g. Cripps, 2013; Winston et al., 2014; Cripps et al., 2019; Chari et al., 2020).

Some chrysomelids are well-known crop pests, including economically significant crops such as potato, avocado, cabbage, plum and citrus to name a few (Bedford et al., 1998; Vela et al., 2014). However, some species are only occasional feeders on such crops, rarely causing significant economic damage, unless present in high numbers (Bedford et al., 1998; Picker et al., 2004; Vela et al., 2014).

The visiting nibbler

Colasposoma fulgidum Lefevre, commonly known as the blue-green citrus nibbler, is one such species. It is an indigenous leaf-eating chrysomelid beetle, and is a minor pest of citrus, found occasionally feeding on young citrus leaves and stalks (Figure A and B) and even less often on fruit. The beetle occurs on other indigenous wild trees and shrubs emerging in spring. Valencia and Navel oranges are amongst the most attacked citrus types during the emergence period, whilst these beetles have rarely been found feeding on lemons and Mandarins (Bedford et al., 1998). The blue-green citrus nibbler has been recorded feeding on a variety of host plants, including black jack and other orchard weeds (Bedford et al., 1998). Indigenous plants hosting the beetle include river bushwillow or rooiblaar (*Combretum erythrophyllum* (Burch.) Sond. Combretaceae) and buffalo thorn or blinkblaar-wag-'n-bietjie (*Ziziphus mucronata* Willd. subsp. *mucronata* Rhamnaceae) (see,

Webb, 1974; Annecke & Moran, 1982). Furthermore, the beetle has also been recorded on guava trees (Joubert, 1936).

Distribution

The beetle's recorded distribution in SA is from four localities: Letaba Estate, Zebediela, Nelspruit and Rustenburg (Bedford et al., 1998). Recent field observations have also noted the beetle in several other locations: Burgersfort, Letsitele, Malalane and Ohrigstad. Documenting the updated distribution of these visitors will help with targeted and rapid monitoring of the normal sporadic outbreaks of these insects, providing early warning of the damage they might cause, when present in large numbers.

Economic importance

Infestations of the nibbler rarely occur and damage to young fruit and leaves is not common in most orchards. Although the beetle preferentially feeds on young leaves, smaller fruit, up to pea-size, are sometimes targeted, whilst larger fruit (almost golf ball size) are usually avoided by the beetle. Hardened dark green leaves can also be consumed.

Life history

Eggs

The blue-green citrus nibbler lays eggs in clusters of 3 - 100, usually found on the extreme tip of the leaf (Bedford et al., 1998). Eggs are mostly laid on the upper surface

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of the leaf, resembling a long pale yellow cylinder. These leaves are usually hidden inside the tree canopy, amongst the lower hanging older leaves, thus often not easy to see. The incubation period of the eggs is 2 - 4

Left and above: Feeding damage by the blue-green citrus nibbler on leaves (A) and stalks of citrus (B)

C



Colouration can differ from region to region, with beetles in some areas having a dominant metallic green whilst in other areas a dominant metallic blue

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weeks. Eggs are laid normally in the middle of November, with some eggs starting to hatch at the end of November with hatchlings being encountered in December.

Larva and pupa

Newly emerged larvae will fall to the ground. However, little more is known about the larval feeding habits and pupal duration.

Adults

The adult blue-green citrus nibbler is a beautifully coloured metallic blue-green (Figure C) – hence its name – emerging from the soil after the pupal period. Colouration can differ from region to region, with beetles in some areas having a dominant metallic green whilst in other areas a dominant metallic blue (Figure D). However, information on the cause of this colour variation is still lacking.



Adult blue-green citrus nibbler, showing differing colouration in different areas: (C) most common colouration, here recorded in Ohrigstad and (D) found in Letsitele

Seasonal occurrence

The blue-green citrus nibbler undergoes one generation per year, with the first beetles emerging between September and October and feeding and mating in November (Bedford et al., 1998). When suitable foliage is scarce, these visitors will continue feeding and mating on other surrounding vegetation in the orchard. The nibbler becomes scarce towards the end of December to early January, with very few beetles being found on the flush in late January.

Control measures

Control measures are not necessary for this visitor. Although, in citrus nurseries with a lot of young trees constantly flushing, it may occasionally be necessary if the beetle is present in large numbers. Most of the eggs laid in November are parasitized by two or three species of parasitoids, suppressing the beetle population to an almost non-detectable level. However, little is known about the parasitoids and they are yet to be identified (Bedford et al., 1998). Two or more parasitoid species may emerge from one egg in some instances.

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