Pa'auilo Mauka Kalōpā Community Association

PMKCA Newsletter – April 2024

Ranching without Pastures? Unthinkable!

An update on the *twolined spittlebug* – a rancher's worst nightmare.

The adult twolined spittlebug, about 3/8" long, and its nymphs are destroying thousands of acres of Hawaii's best pasture grasses.

Ruth Bennett
VP PMKCA

In recent years, the ranching community and supporting researchers have been very concerned about the advance of an invasive insect, the twolined spittlebug (*Prosapia bicincta)* which, since discovered on Hawai'i Island in 2016, has been decimating pasturelands in areas above Kona.

In an article for the Hāmākua Times in August 2021, I wrote that this tiny creature had turned 175,000 acres of grazing into a wasteland of inedible weeds and was advancing towards Waimea and the Hāmākua Coast. It was expected to destroy around 35,000 acres in each subsequent year and was a major threat to the livelihoods of ranching families and to the paniolo way of life on our island. Three years later, it's time for an update on the TLSB.

The twolined spittlebug is better understood.

The twolined spittlebug (see www.tlsbhawaii.com) makes its living by sucking the xylem sap from several grass species critical to livestock and wildland preservation. Nymphs feed on roots and ground-level stems and adults feed on the foliage. On our tropical islands, it favors the kikuyu grass, imported from Africa, which comprises 85% of livestock pasturelands on the Big Island. After hatching, tiny soft-bodied nymphs form a foamy protective "spittle" mass to reside in before transforming into hopping/flying adults (the size of your little fingernail). The adults continue feeding on our island's pastures

and lawns and laying the eggs for its future generations. One mature TLSB can lay up to 142 eggs which mature and repeat the cycle every 60 days or so. The devastation can spread exponentially.

In recent years, invasive species organizations, government agencies, ranching associations, and the University of Hawaii have initiated and supported research projects to study the TLSB, test solutions, aid affected ranches, and inform the general public.

The rate of spread of TLSB has slowed down.

It seems that climate changes and natural barriers have slowed the spread of TLSB. We have been experiencing drought conditions in recent years, and the TLSB doesn't like dry conditions. Another factor seems to be that the pest, advancing towards Waimea, may have reached the edge of its favored misty upland terrain. The drier landscape above North Kona and Kohala lacks the bug's favored kikuyu grass. In the last three years, the TLSB seems to have advanced only a few thousand acres but still occupies over 178,000 acres.

Research into resistant pasture grass species has progressed.

The efforts of University of Hawaii researchers have identified several candidate grass species which have demonstrated resistance to the TLSB, are proving to be suited to our climate, and which provide nutrition to livestock. If we are unable to eliminate the twolined spittlebug, in a few more years of research and field trials, we may have some proven grasses to replace kikuyu as the mainstay of our ranching economy.

Potential natural bio-controls may become viable.

In Kona, a naturally occurring fungus was detected on twolined spittlebug adults. However, this natural enemy is not available commercially. In South America, there is a predatory "hover fly" species that chooses spittlebug nymphs as its favorite meal. While care and diligence must always be foremost before a deterrent species is introduced to our isolated islands, the fungus and/or fly might prove to be future controls for TLSB.

Pasture management techniques and recovery methods are being tested.

Research in recent years has provided some insights into ways that pastures may be made inhospitable to the bug. Drier pasture conditions and reducing thatch (plant debris that holds moisture) may deter the TLSB population to the point that the grasses can survive an attack. Where possible, grazing or mowing to keep grass short will hinder the TLSB.

If the worst outcome materializes, thousands of acres of rangeland would need to be restored. The noxious and non-nutritious weeds and shrubs would need to be removed

and the landscape reseeded with proven resistant grass species. The use of drones has opened some possibilities for recovering inaccessible pastures.

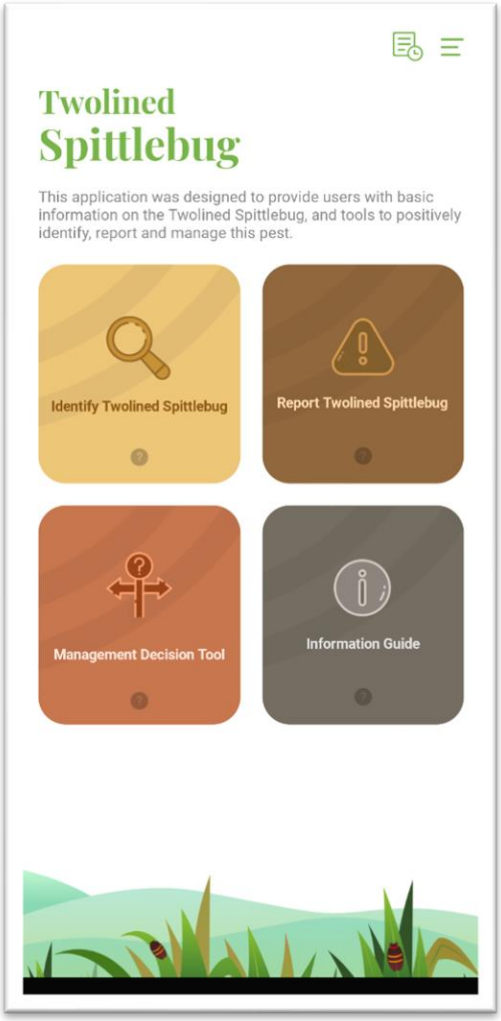
Educating the public is a priority and new publications and tools are available.

We humans may be the culprits in an infestation in a new area. Any of us can transport an egg laden adult TLSB to a new area via a new plant, in our gear, or in our vehicles. The TLSB will also try to inhabit and destroy the grass that forms our lawns and landscapes! *An informed homeowner tending their lawn may see a dead spot and be the first to report a new infestation of TLSB*.

To help us all to be informed and vigilant, a new app (phone-based) is available which will aid in identifying and reporting the TLSB. Download your copy of the "Twolined Spittlebug Tool" app to your phone and use it to identify a spittle mass or the adult insect. The app will help you alert the TLSB team and potentially stop an invasion on our coast.

If we enjoy the beauty of green pastures and value the traditions and lifestyles of our ranching community, then it is our kuleana to keep the twolined spittlebug out of the Hāmākua.

(Thanks to rangeland specialist Dr. Mark Thorne and Ph.D. candidate Shannon Wilson for contributions to this article.)



Download the new TLSB mobile app and help identify and report this invasive pest.

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