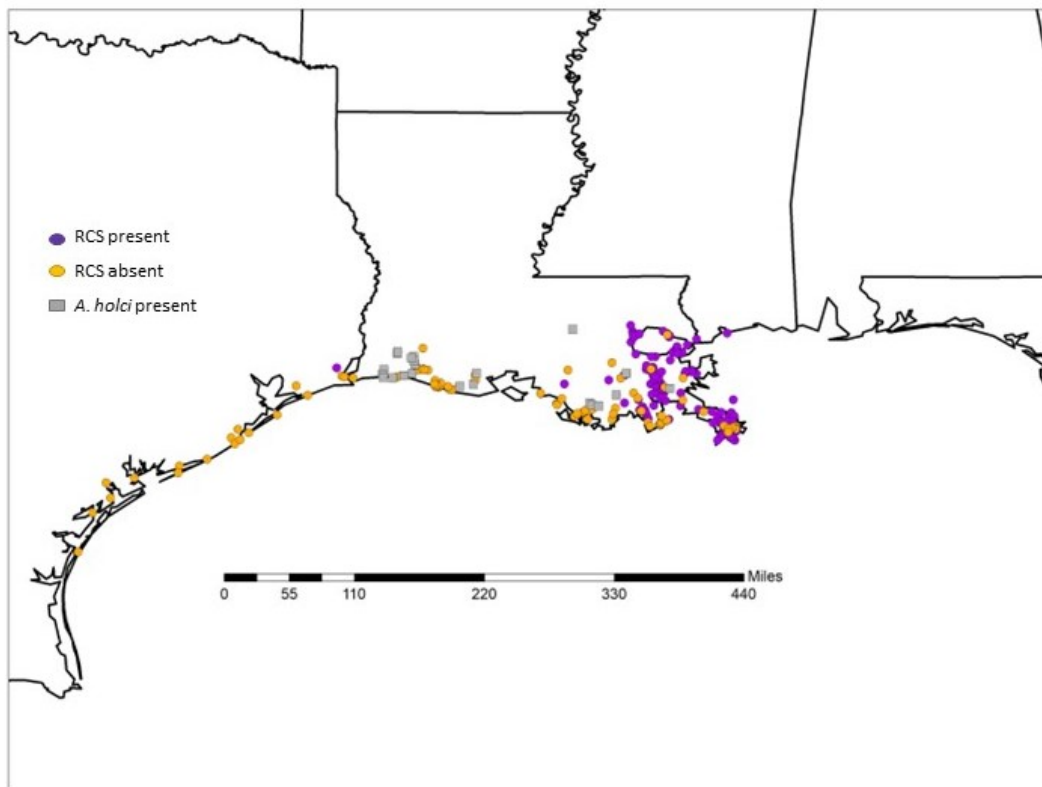


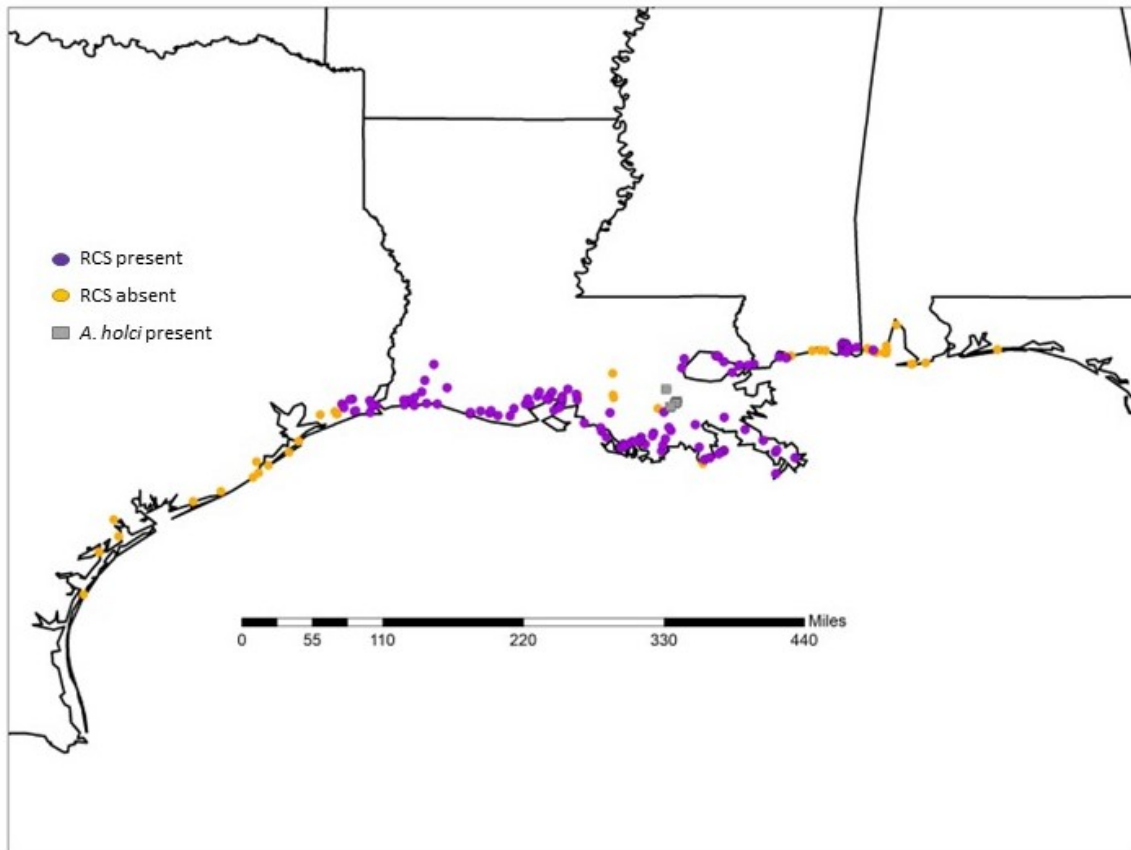
## Surveys Reveal the Expansion of Roseau Cane Scale along Gulf Coast

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The roseau cane scale (RCS) (*Nipponaclerda biwakoensis*) is an invasive insect present in Louisiana. The scale is native to east Asia and was first detected on roseau cane (*Phragmites australis*) within Plaquemines Parish in 2016. Field surveys performed in 2017 identified populations of the insect largely in southeastern Louisiana with a satellite population located near Port Arthur, Texas (Fig. 1). Further field surveys performed in the fall of 2021 and 2022 have revealed startling information: RCS has spread across all of coastal Louisiana into neighboring states. The scale can now be found from Port Arthur, TX to an area just southwest of Mobile, AL (Fig. 2). The population discovered in Bayou La Batre, AL appears to be the leading edge of expansion as only immatures were found with no mature females present.



**Figure 1.** Initial range surveys published in 2017 found RCS was largely confined to the southeastern portion of the state. *Aclerda holci* is a native scale that also feeds on *Phragmites* but does not reach damaging numbers.



**Figure 2.** Distribution of RCS based on surveys performed in 2021 and 2022. Now RCS dominates the southern portion of the state. *Aclerda holci* that was once found in many of these areas is no longer detected.

Scale insects, like RCS, are plant sap feeders. These insects spend most of their lifecycle completely immobile, feeding on their host plant. Many species of scales move so little that they have done away with features like legs, antenna, and eyes. So how has this limbless insect been able to spread so rapidly? The first stage of an immature scale is mobile (called a crawler) and will search for a suitable feeding location before settling there for the rest of its life. Crawlers easily disperse within a stand via stem-to-stem contact. Explaining how the scale jumps from stands miles apart is a challenge. We hypothesize a few potential dispersal methods for the scale. Strong storms can blow the tiny crawlers to new stands of roseau cane. Additionally, infested stems can be washed out by storms into debris piles called wrack. The wrack can be carrying pregnant females (**Fig. 3**) that hatch hundreds of crawlers wherever the wrack settles. Other explanations include birds transporting crawlers from landing on infested stems and moving to new stems and humans transporting cut stems to new locations.

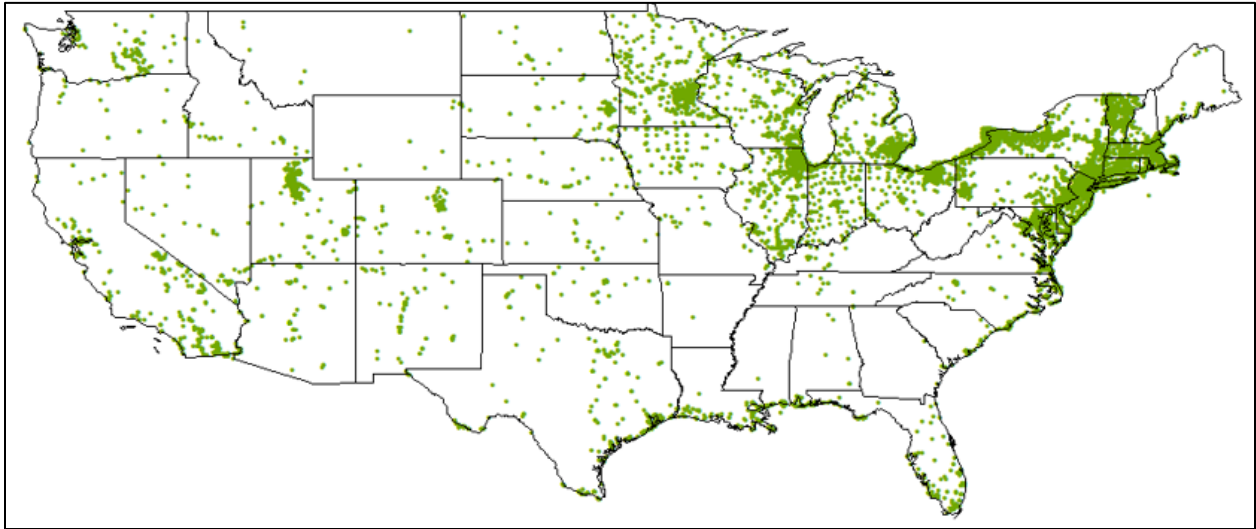


**Figure 3.** Roseau cane stem infested with mature RCS females.

RCS is a concern due to its implication in the die-off of the roseau cane within the Mississippi River Delta. Roseau cane is the dominant vegetation and performs critical ecosystem services that support Louisiana's economy. Roseau cane serves as habitat for fish, shrimp, waterfowl, and shorebirds within the delta in addition to keeping the soil from washing away. Stands of roseau cane protect oil infrastructure from damage by storms and waves and prevent shipping channels from filling with sediment, reducing the need for costly dredging. The loss of roseau cane may increase hurricane damage as it is no longer able to break up large waves and strong winds from tropical storms before it reaches further inland. Die-back symptoms are observed mostly within the Mississippi River Delta, where RCS populations are the densest and established longer. However, that may change as populations establish and increase in new areas.

Researchers are not sure how much further RCS can spread. The westward expansion appears to have slowed, but RCS will likely spread eastward into Mobile Bay and further in the coming years due to dense roseau cane stands in the area. Since this scale feeds only on roseau cane, it is restricted to areas where the cane is growing. However, the reeds can be found around the entire country, with the highest density occurring along the east and gulf coasts (**Fig. 4**). The scale's native habitats in Japan and China

are at similar latitudes to New England; presuming the climates are similar, RCS may be able to survive the winter months of the northeast by sheltering from the cold within leaf sheathes. For the moment, RCS has not been found any further east or west, but continued monitoring and research is being done to understand and manage this new insect species.



**Figure 4.** Distribution of roseau cane in the United States. Map developed using reports from iNaturalist.org.