

2015-2024

FDACS Summary Formosan Termite Alate Trapping Report



Photo courtesy: Dr. Nan-Yao Su

Johanna Welch, DPM



Contents

Purpose	1
Materials and Methods.....	1
Spring Trapping 2015-2024.....	2
Results	2
Discussion.....	6
Conclusion.....	7
Fall Trapping.....	7
Special Thanks.....	7

Purpose

The Formosan termite (*Coptotermes formosanus*) came into the Florida Panhandle about 60 years ago on infested wood packing materials in ships coming from Asia after WWII. Ever since, they have spread rapidly throughout the Southeastern US and thrive in the region's high temperatures and humidity. Formosan termites cause billions of dollars of damage each year in the US alone. This project is designed to detect Formosan termite spread throughout the Western Panhandle by trapping alates during their major swarm season in April to July. Trapped alates were counted on a weekly basis to determine peak swarming periods and correlated with local weather data. The presence or absence of alates was also documented in key communities throughout four counties. This data can aid citizens on Formosan termite presence and activity level in their municipalities.

Materials and Methods

The simple termite trap consists of a sticky card in proximity to a bright, reliable light source. The white, gridded 7" by 4" sticky card is zip tied to a six-foot, plastic-coated metal stake and placed under strong, predetermined streetlights. These streetlights are chosen for brightness, location out of the way of human activity, and lack of competing light sources. Traps were checked weekly during the months of April to July. Alates were identified using a microscope when needed, counted and recorded in an Excel worksheet along with pertinent local weather data obtained from Weather Underground: <https://www.wunderground.com/history/>.



Figure 1: Formosan termite alate trap

Spring Trapping 2015-2024

Twenty-two trap locations were originally selected in 2015, each representing a key Panhandle community with at least one location North of I-10 within each of the four counties. The same locations were used again every year from 2016 to 2024.

Results

Out of the total 22 traps, 19 were positive for Formosan termite alates throughout the four Panhandle counties from 2015-2024 (see Figure 2).

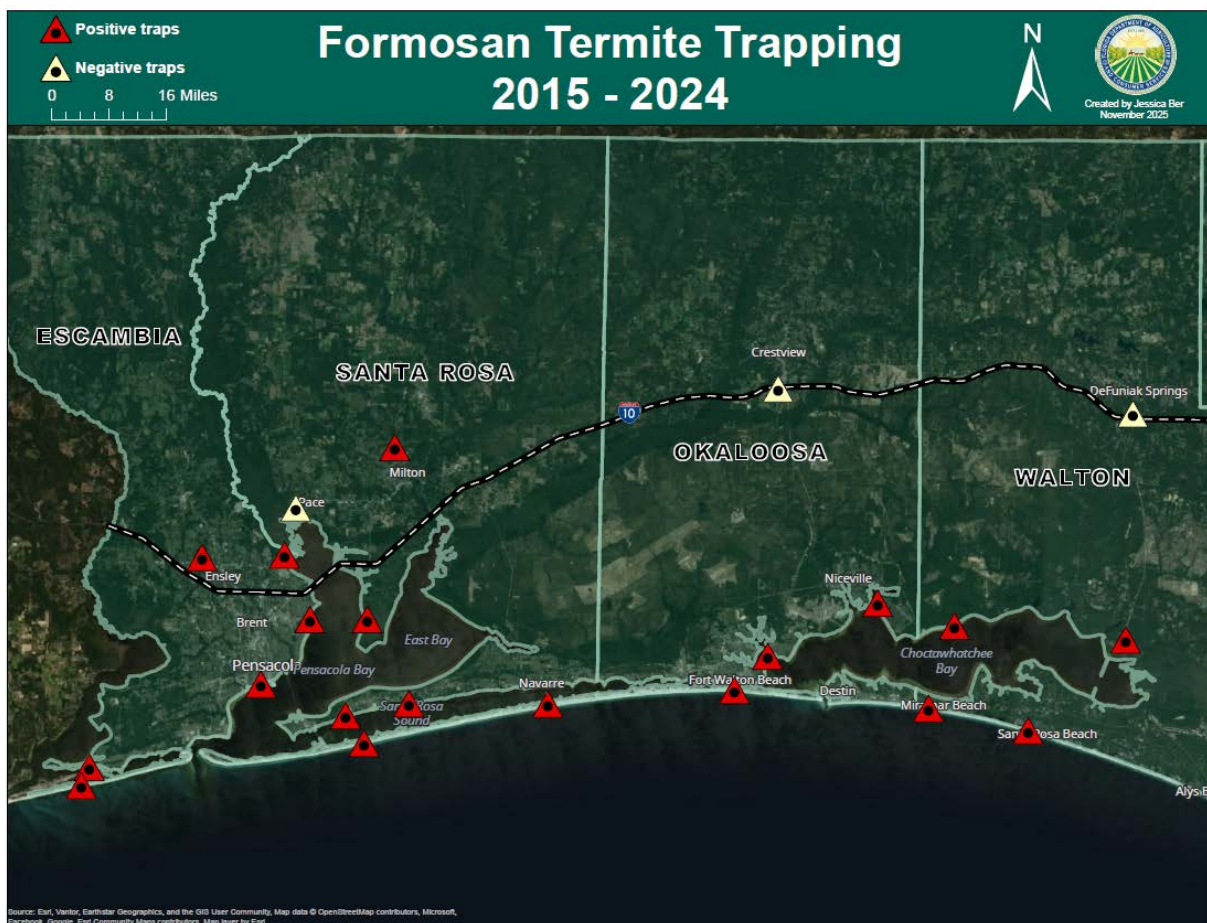
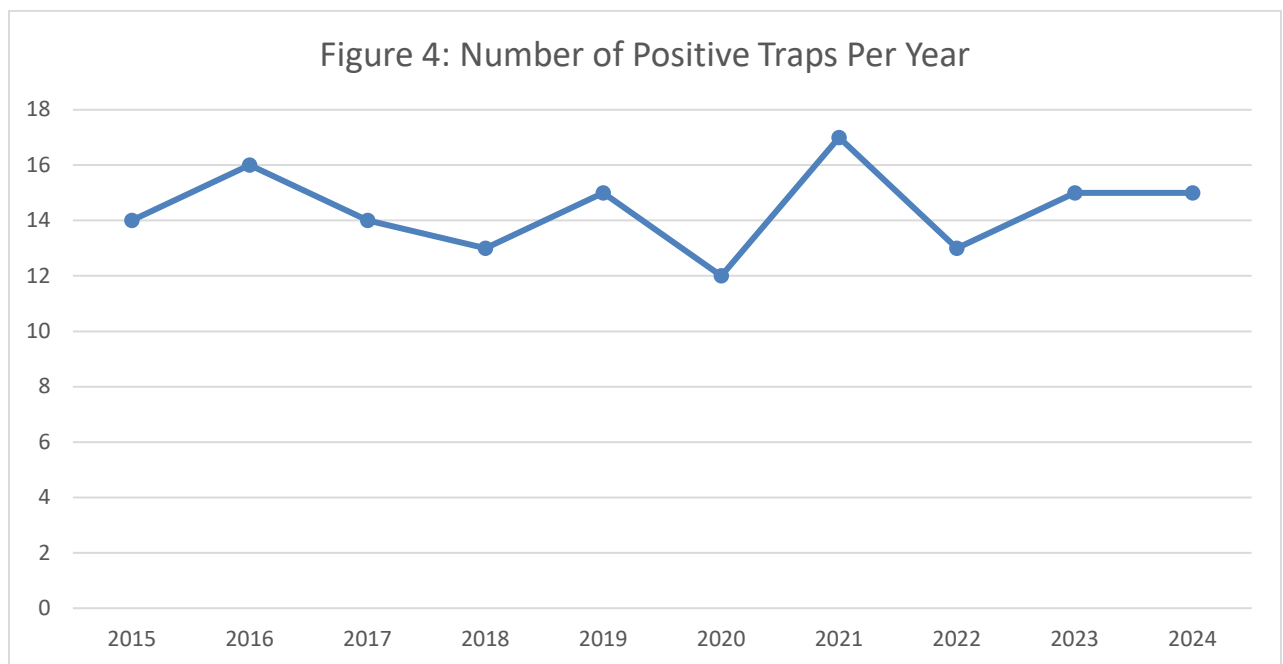
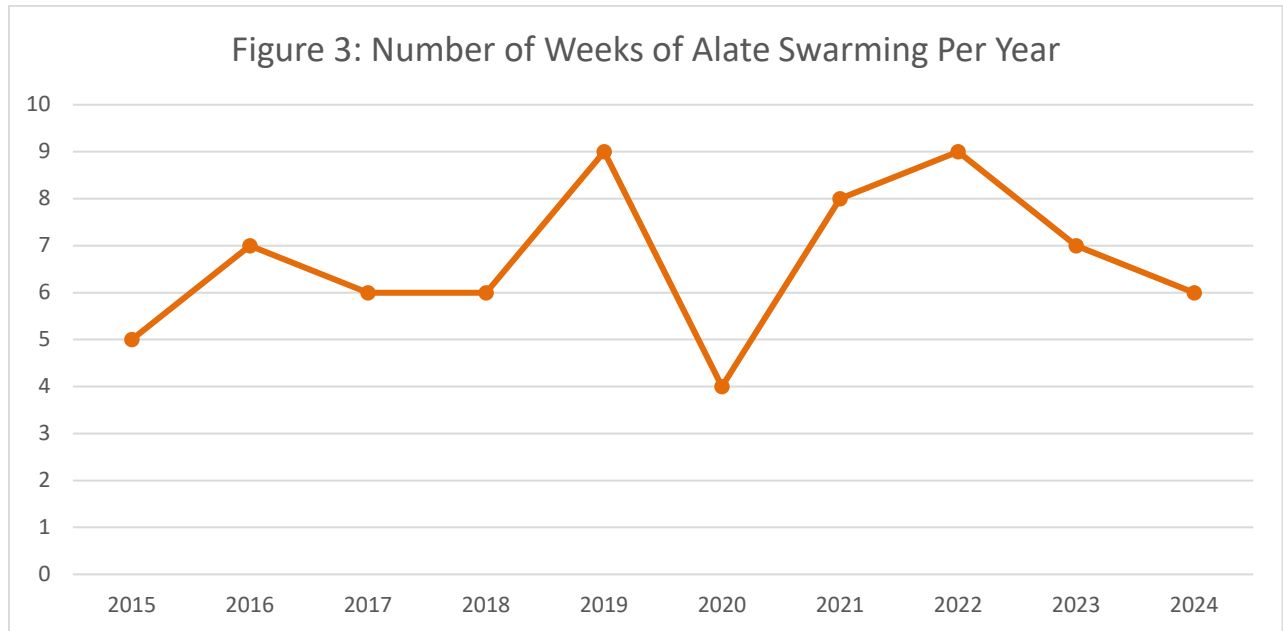
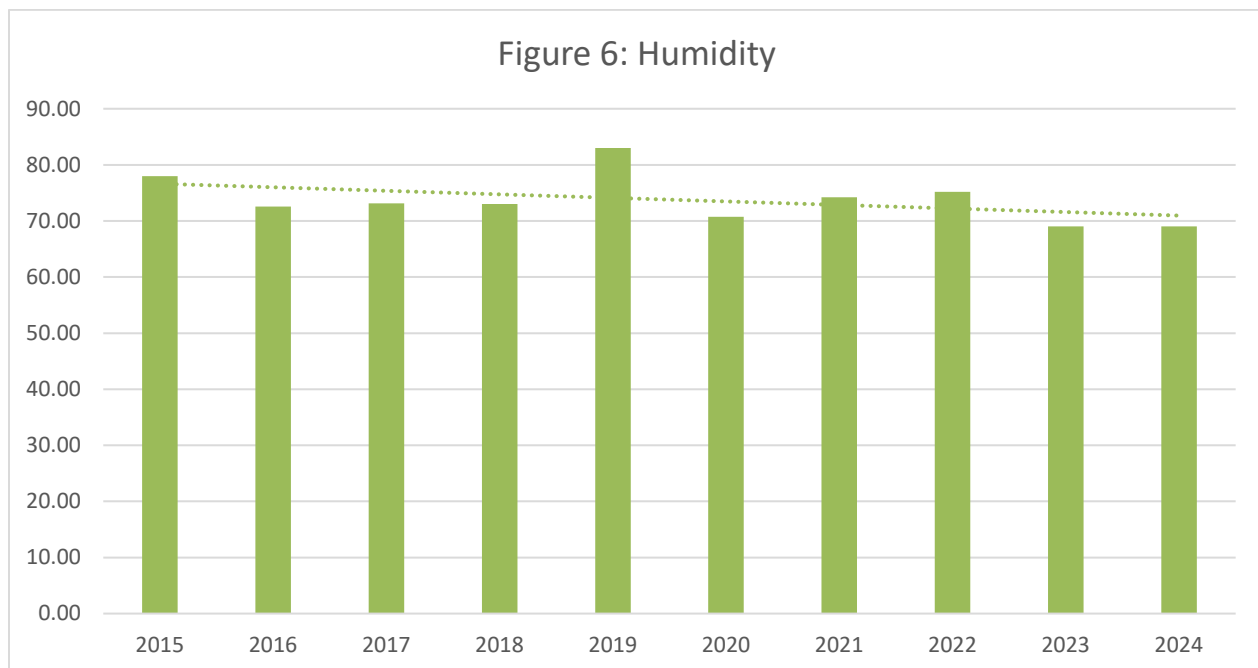
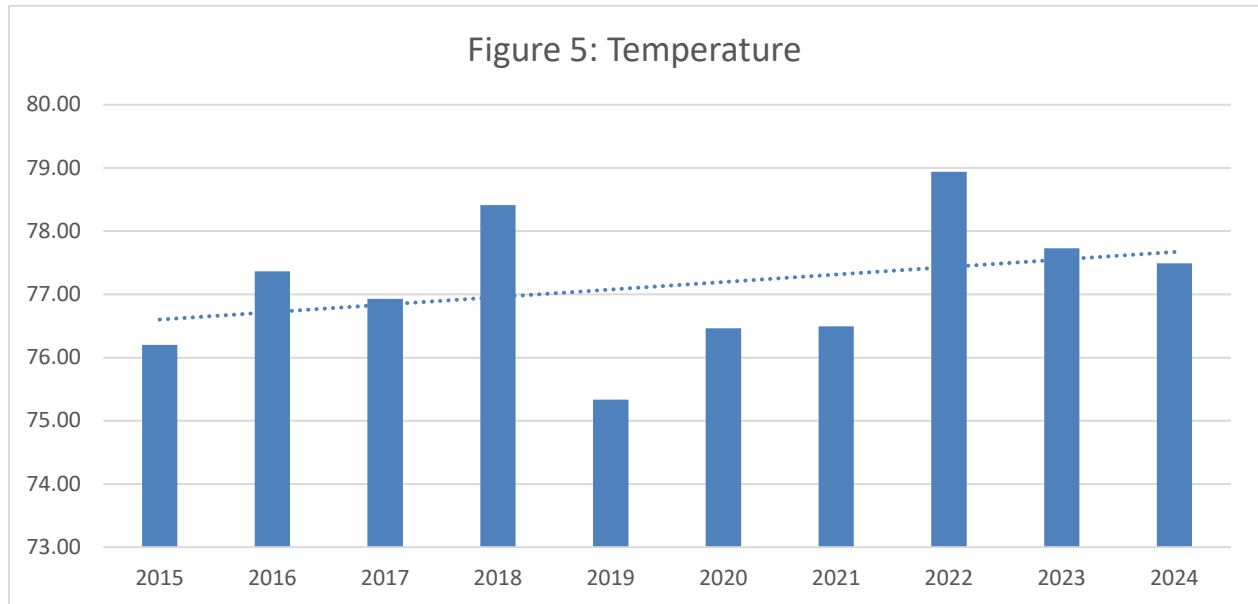


Figure 2. Map of positive traps.

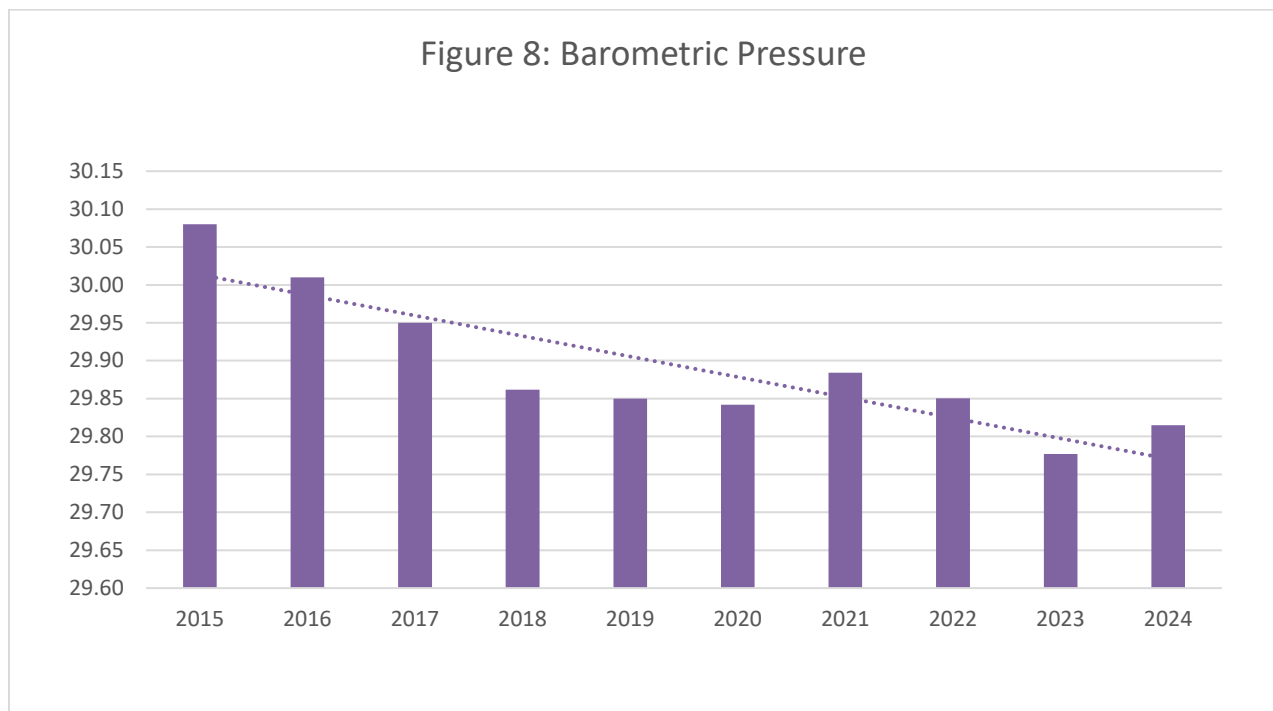
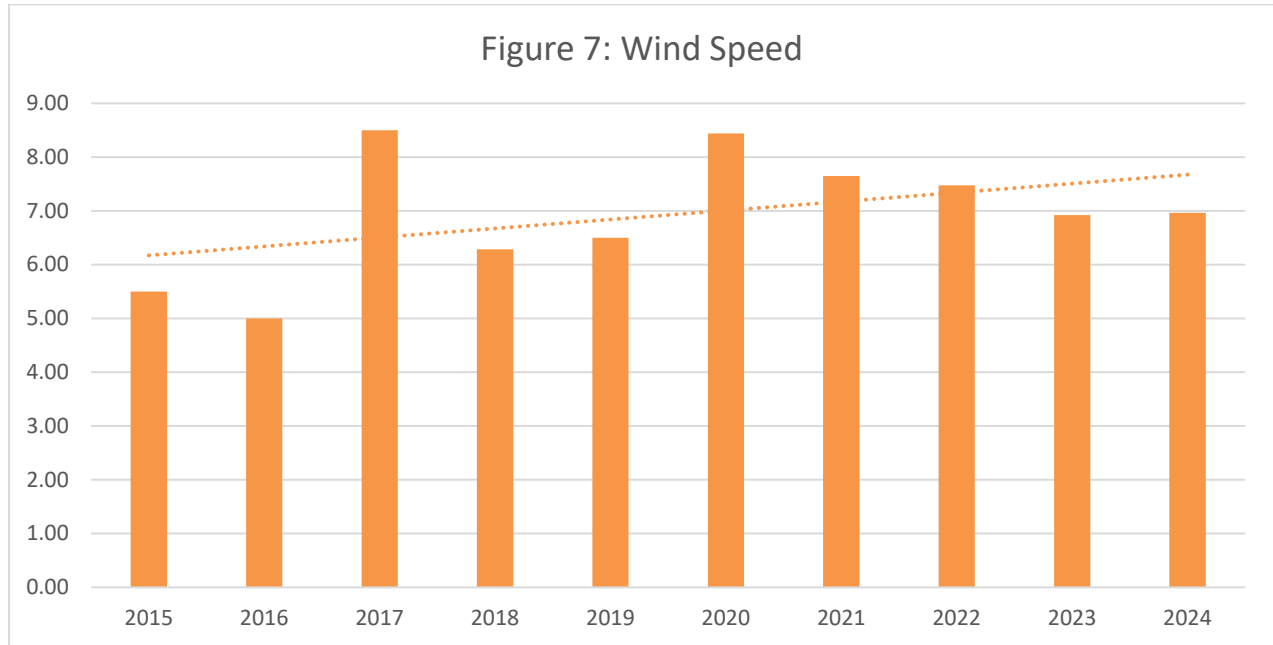
Formosan alates were caught from 4 weeks in 2020 up to 9 weeks in 2019 and 2022 of the trapping periods from 2015-2024 (see Figure 3). Alates were caught an average of 6.7 weeks of the trapping period during the ten years. The total number of positive traps per year ranged from 12 in 2020 to 17 in 2021 with the average being 14 traps (see Figure 4). Through those years, swarming started as early as mid-April and ended as late as the first week of July.



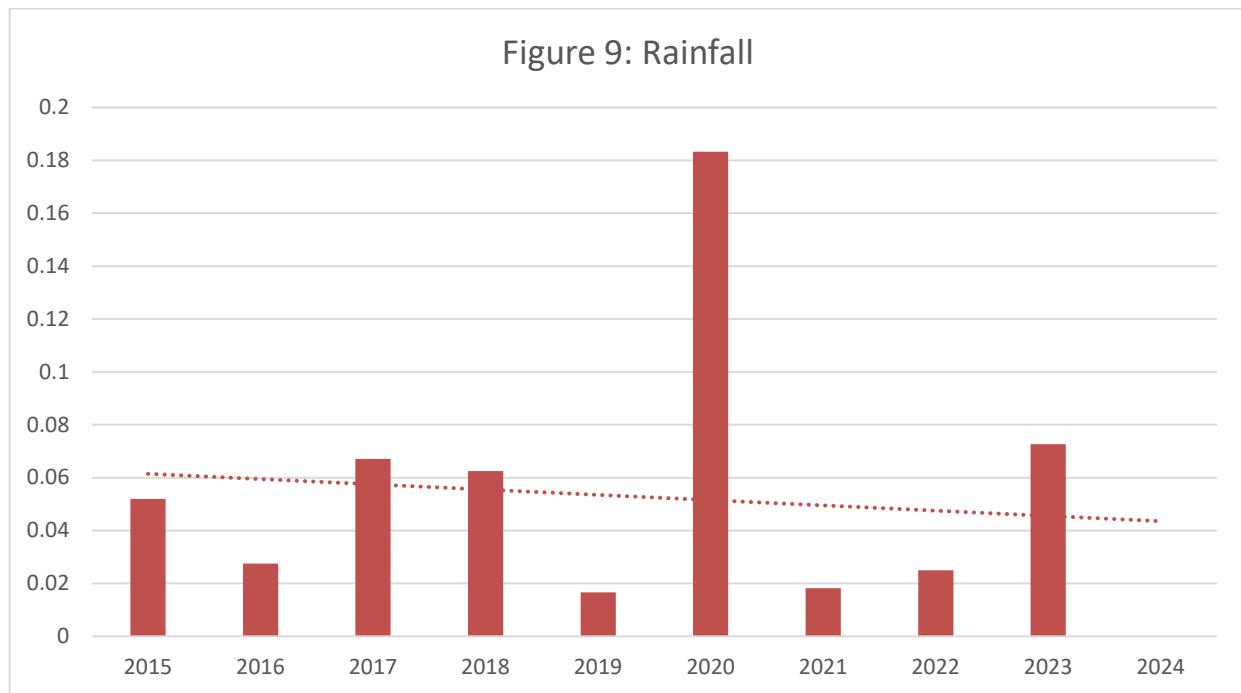
From 2015-2024, weather data was collected during the peak alate swarming time of 8 pm and averaged for each year. Overall temperatures were highest in 2022 and lowest in 2019 over the ten-year period. Overall humidity was highest in 2019 and lowest in 2023 and 2024 as indicated in Figures 5 and 6 below. Optimal temperatures for the peak in flights were in the 75°F range with humidity at or above 70% throughout the ten-year period.



Wind speed was highest in 2017 and lowest in 2016; barometric pressure was highest in 2015 and lowest in 2023 as indicated by Figures 7 and 8 below.



Rainfall was highest in 2020 and lowest in 2024 as indicated in Figure 9 below.



Discussion

From 2015-2024, the trapped Formosan termite alate counts were highest in 2019 and 2022 and lowest in 2020 with an average of 6.7 weeks of swarming over the 10 years. The swarm season started as early as mid-April and ended as late as the first week in July. There were one or two spikes in swarming observed during the trapping periods over the ten years with five years having one spike in swarming and five years having two spikes in swarming.

Collected weather data demonstrated a pattern through the years that as temperatures increased through the end of April, alate swarming activity started and then increased. Temperature and humidity coincided with the major peak in swarming in the 75°F temperature and 70% humidity ranges. Wind speed was consistently low and barometric pressure as well as rainfall was variable through the trapping periods of 2015-2024.

Conclusion

The Formosan alate trapping project has been successful through the years to document Formosan termite activity in the Western Panhandle. Nineteen out of the 22 trap locations were positive from 2015-2024, and many important observations on the length of swarm season, densities of populations, and how five weather factors may affect swarming were documented for key communities throughout four counties.

In order to continue to provide a more complete picture of alate swarming in the Panhandle, this project will now be shifting trap locations to the northern regions of these counties. This will help identify new areas of Formosan activity and contribute to increased and more widespread education, understanding of the range of Formosan territories, and possibly even a swarm forecasting system for citizen and pest control groups in the Florida Panhandle.

Fall Trapping

Every September and October from 2015 to 2023, a Fall trapping was performed in Escambia and Santa Rosa counties to document any Formosan termite alate swarming activity. This time of year has weather conditions similar to spring and swarming events are possible. Three trap locations were used that had high catches of alates in the spring. No Formosan termites were ever caught during the Fall trapping.

Special Thanks

A special thanks to Jessica Ber for her expertise in GIS/mapping and Marah Clark for her support and guidance for this project through the years.