CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

OFFICIAL NOTICE
FOR THE COMMUNITIES OF CLOVIS, DEL REY, FOWLER, FRESNO, KINGSBURG, PARLIER, REEDLEY, SANGER, and SELMA IN FRESNO COUNTY
PLEASE READ IMMEDIATELY

NOTICE OF TREATMENT FOR THE GLASSY-WINGED SHARPSHOOTER

The California Department of Food and Agriculture (CDFA) has confirmed the presence of the glassy-winged sharpshooter (GWSS), the invasive vector of the bacterium that causes Pierce's disease (PD) in grapes, in the communities of Clovis, Del Rey, Fowler, Fresno, Kingsburg, Parlier, Reedley, Sanger, and Selma in Fresno County.

Based on these detections, findings, and recommendations from CDFA's GWSS staff entomologists, implementation of CDFA's rapid response strategies are necessary for eradication and control.

A Program Environmental Impact Report (PEIR) has been certified which analyzes the Pierce's Disease Control Program (PDCP) in accordance with Public Resources Code, Sections 21000 et seq. The PEIR is available at http://www.cdfa.ca.gov/plant/peir/. The treatment activities described below are consistent with the PEIR.

In accordance with integrated pest management principles, CDFA has evaluated possible treatment methods and determined that there are no physical or cultural methods available to control GWSS in this area.

The treatment plan for the GWSS infestation will be implemented from May 2019 through October 2020. This timeframe is necessary because once treatments are completed this year the post treatment monitoring will continue through October, then cease until warmer temperatures are achieved in the Spring of 2020. Monitoring for GWSS becomes ineffective when temperatures are below the flight threshold for this insect, which is about 65°F. Post treatment monitoring will resume in the Spring of 2020 and will determine the necessity of additional treatments. The plan will be implemented within a 200-meter radius of each detection site as follows:

1. Chemical Control. All properties with host plants within a 200-meter radius around each detection site shall be treated, if resident's permission is granted, according to the following protocol to control GWSS:

    a. The pesticides Merit® 75WSP, 75WP, or CoreTect™, containing the systemic insecticide imidacloprid, will be applied to the root zone beneath GWSS host plants for controlling GWSS and providing long-term protection against reinfestation. Merit® 75WSP or 75WP will be applied as a foliar spray or soil drench, while CoreTect™ tablets will be inserted two to five inches below the soil surface and watered in to initiate tablet dissolution. CoreTect™ will be used in place of Merit® 75WSP or 75WP in situations where there are environmental concerns about soil surface runoff of the liquid Merit® formulations or for hosts that aren't listed on the Merit® label.

2. Biological Control. Biological control is a method of controlling target pests using other

living organisms, such as predators, parasitoids, and pathogens. The biological control agents of GWSS used in PDCP are stingless, minute (1/16") parasitic wasps that specifically attack GWSS eggs (egg parasitoid). Female adult wasps deposit their eggs inside GWSS eggs and immature wasps develop inside the host eggs, with adult wasps eventually emerging from GWSS eggs. After mating, newly-emerged wasps search for GWSS eggs to lay their eggs. Through this repeated life-cycle, the parasitic wasps kill GWSS eggs and contribute to the suppression of GWSS populations. Depending on multiple factors, including but not limited to the proximity to other release sites and availability of parasitoids, additional biological control release sites may be used after treatments have been made.

Public Notification:

Residents of affected properties will be invited to a public meeting where officials from CDFA, the county agricultural commissioner's office, the Department of Pesticide Regulation, and the Office of Environmental Health Hazard Assessment will be available to address residents' questions and concerns.

Residents will be notified in writing at least 48 hours in advance of any treatment in accordance with the Food and Agricultural Code sections 5771-5779 and 5421-5436.

Following the treatment, completion notices are left with the residents detailing precautions to take and post-harvest intervals applicable to fruit bearing trees on the property.

Press releases, if issued, will be prepared by the CDFA Information Officer. Either the county agricultural commissioner or the Public Information Officer serves as the primary contact to the media.

Information concerning the GWSS eradication effort shall be conveyed directly to local and State political representatives and authorities via letters, emails, and/or faxes.

Treatment information will be posted to the website located at https://www.cdfa.ca.gov/pdcp/PD_GWSS_NOT_Mtg.html. For any questions related to this program please contact the local county agricultural commissioner's office listed on the treatment notice or the PDCP at 916-900-5024.

Enclosed are the findings regarding the treatment plan, a map of the treatment area, work plan, and a pest profile.

Attachments

FINDINGS REGARDING A TREATMENT PLAN FOR THE GLASSY-WINGED SHARPSHOOTER
Communities of CLOVIS, DEL REY, FOWLER, FRESNO, KINGSBURG, PARLIER, REEDLEY, SANGER, and SELMA in Fresno County
Project PD-0004

The California Department of Food and Agriculture (CDFA) confirmed the presence of the glassy-winged sharpshooter (GWSS), *Homalodisca vitripennis*, in the communities of Clovis, Del Rey, Fowler, Fresno, Kingsburg, Parlier, Reedley, Sanger, and Selma. GWSS is an invasive pest which carries the deadly grapevine disease known as Pierce's disease (PD). GWSS is not established in this community and will cause harm if allowed to become established.

Based on this detection and recommendations from CDFA GWSS staff entomologists, I have determined it is necessary to control the infestation.

The Pierce's Disease Control Program (PDCP) has evaluated feasible treatment methods in accordance with integrated pest management (IPM) principles. As part of these principles, I have considered the following treatments for control of GWSS: 1) physical controls; 2) cultural controls; 3) biological controls; and 4) chemical controls. Upon careful evaluation of each these options, including input from PDCP, and using the experience gained from 18 previous successful eradication efforts, I have determined that there is a need to control this pest using available methods. These methods include treating GWSS host material with soil treatments and foliar treatments on and near properties where GWSS was found. These methods were selected based upon minimal impacts to the natural environment, biological effectiveness, minimal public intrusiveness, and cost. Depending on multiple factors, including but not limited to, proximity to other release sites and availability of parasitoids, additional biological control release sites may be used after treatments have been made.

Background

GWSS is an invasive and aggressive vector of Pierce's disease (PD). PD is considered one of the most devastating diseases of grapevines in the world. The bacterium that causes the disease, *Xylella fastidiosa*, kills grapevines within two to five years of infection. There is no cure for Pierce's disease.

GWSS was first reported in California in 1994 but probably arrived in the late 1980s. It is native to the southeastern United States and northeastern Mexico. It feeds on the xylem fluid of a large number of plants. GWSS builds up large populations on a diverse array of host plants and is a strong flyer, traveling greater distances than native sharpshooters. GWSS is now found in 12 counties.

This insect pest presents a significant and imminent threat to the natural environment, agriculture, and economy of California. The disease that GWSS vectors threatens a crop production value of $4.95 billion and associated economic activity within California of approximately $57.6 billion. Other crop and ornamental plant resources such as almonds (valued at $5.33 billion) and shade trees are also at risk from the Pierce's disease strain of the bacterium.

Additionally, if unabated by the Department, the spread of GWSS in California would cause significant harm to the natural environment as it would lead to increased, unmonitored use of pesticides by residents, and, where control and eradication measures are not used, increased disease in agricultural and landscape plants.

When GWSS arrived in California it had few natural enemies and its populations built up rapidly. California's first indication of the severe threat posed by this new disease and vector combination occurred in Temecula, Riverside County, in August of 1999, when over 300 acres of grapevines infested with the GWSS were infected with PD and ultimately destroyed. Between 1998 and 1999, the grape tonnage harvested in Temecula fell 36% with a lost production value estimated at $15.2 million. With the introduction of GWSS into the southern San Joaquin Valley, viticulture in traditionally safe growing regions of the state is now at risk.

In 2000, the Legislature found and declared that PD and GWSS are a clear and present danger to California's grape industry, as well as many other commodities and plant life. In addition, the Legislature created PDCP to combat PD. The PDCP implements five program elements to minimize the impacts of Pierce's disease and its vectors in California. PDCP's strategy is to slow or stop the spread of the GWSS while short and long-term solutions to Pierce's disease are developed. The five elements are:

1. **Contain the Spread**
   Prevent the spread of GWSS to new areas of the state by regulating shipments of host plants and other host material, and suppressing populations to prevent natural spread.

2. **Statewide Survey and Detection**
   Find new GWSS infestations quickly and confirm that uninfested areas remain free of infestation by conducting systematic trapping in uninfested at-risk areas.

3. **Rapid Response**
   Respond quickly to detections of GWSS in new areas by intensively surveying the area and applying treatments if necessary.

4. **Outreach**
   Raise awareness about Pierce's disease and its vectors while responding to the concerns of growers and the public by conducting outreach and education activities.

5. **Research**
   Develop long-term, sustainable solutions to Pierce's disease and its vectors by sponsoring and facilitating research and development.

The PDCP is a cooperative effort that combines the resources and expertise of federal, state, and county agriculture departments, the University of California, and grape, citrus, and other agricultural communities. The Program works cooperatively with the county agricultural commissioners to conduct most of the first four program elements discussed above, through work plans that are established between PDCP and the county agricultural commissioners. PDCP accomplishes the fifth element (research) by supporting research at universities and other institutions.

Since the PDCP was established, the five-element approach has led to eradication of 18 incipient infestations in counties as diverse and varied as Imperial County in the south to Butte County in the north.

Based upon input from PDCP, I find there are no physical or cultural methods that are effective for controlling GWSS and would allow CDFA to meet its statutory obligations to protect the agriculture and environment of the state. Therefore, it is necessary to conduct chemical treatments and, in certain circumstances, biological controls, to abate this threat. As a result, I am allowing PDCP, in coordination with the Fresno County Agricultural Commissioner, to conduct chemical treatments for GWSS on host material using ground-based equipment within 200-meter radius around GWSS finds and any subsequent finds.

A Program Environmental Impact Report (PEIR) has been prepared which analyzes the GWSS treatment program in accordance with Public Resources Code (PRC), Sections 21000 et seq. The PEIR was certified in December 2014, and is available at http://www.cdfa.ca.gov/plant/peir/. The PEIR addresses the treatment of the GWSS at the program level and provides guidance on future actions

against GWSS. It identifies feasible alternatives and possible mitigation measures to be implemented for individual GWSS treatment activities. The GWSS program has incorporated the mitigation measures and integrated pest management techniques as described in the PEIR. In accordance with PRC Section 21105, this PEIR has been filed with the appropriate local planning agency of all affected cities and counties. No local conditions have been detected which would justify or necessitate preparation of a site-specific plan.

Sensitive Areas

CDFA will consult with the California Department of Fish and Wildlife's California Natural Diversity Database for threatened or endangered species, the United States Fish and Wildlife Service, and the National Marine Fisheries Service, to determine if rare and endangered species are located within the treatment area. Mitigation measures for rare and endangered species will be implemented as needed. The CDFA, in coordination with the Fresno County Agricultural Commissioner, shall not apply pesticides to bodies of water or undeveloped areas of native vegetation. All treatment will be applied in accordance with federal, state, and local pesticide application laws, rules, and guidelines.

Work Plan

The proposed treatment effort will encompass this portion of Fresno County where GWSS has been detected, and any subsequent detection sites. The treatment plan for the GWSS infestation will be implemented from May 2019 through October 2020. This timeframe is necessary because once treatments are completed this year the post treatment monitoring will continue through October, then cease until warmer temperatures are achieved in the Spring of 2020. Monitoring for GWSS becomes ineffective when temperatures are below the flight threshold for this insect, which is about 65°F. Post treatment monitoring will resume in the Spring of 2020 and will determine the necessity of additional treatments. The plan will be implemented within a 200-meter radius of each detection site as follows:

1. GWSS Monitoring. Yellow panel traps may be placed in the area within one square mile of each GWSS detection site at a density of about 30 traps per square mile and will be initially serviced twice per week. After two weeks the inspection interval may be reduced to once per week. Once the delimitation has been completed, the general trap servicing cycle will revert to once every two or three weeks.

2. GWSS Visual Survey. Host plants may be inspected for GWSS within a quarter mile radius of find sites. GWSS suspects shall be collected and forwarded to the CDFA Plant Pest Diagnostic Center (Lab) for identification and analysis.

3. Chemical Control. All properties and adjacent properties with host plants within 200-meters of each GWSS detection will be treated, if permission is granted, according to the following protocol to control GWSS:

    a. The pesticides Merit® 75WSP, 75WP, or CoreTect™, containing the systemic insecticide imidacloprid, shall be applied to the root zone beneath GWSS host plants for controlling GWSS and providing long-term protection against reinfestation. Merit® 75WSP or 75WP will be applied as a foliar spray or soil drench, while CoreTect™ tablets will be inserted two to five inches below the soil surface and watered in to initiate tablet dissolution. CoreTect™ will be used in place of Merit® 75WSP or 75 WP in

situations where there are environmental concerns about soil surface runoff of the liquid Merit® formulations or for hosts that aren't listed on the Merit® label.

4. Biological Control. Biological control is a method of controlling target pests using other living organisms, such as predators, parasitoids, and pathogens. The biological control agents of GWSS used in PDCP are stingless, minute (1/16") parasitic wasps that specifically attack GWSS eggs (egg parasitoid). Female adult wasps deposit their eggs inside GWSS eggs and immature wasps develop inside the host eggs, with adult wasps eventually emerging from GWSS eggs. After mating, newly-emerged wasps search for GWSS eggs to lay their eggs. Through this repeated life-cycle, the parasitic wasps kill GWSS eggs and contribute to suppression of GWSS populations. As a partially infested county there are already biological control release and monitoring sites in Fresno County. Additional release sites could be added later, depending on multiple factors including, but not limited to, number of GWSS finds and their proximity to riparian habitat.

5. Post-Treatment Monitoring. An assessment of the GWSS populations will be conducted on a limited number of selected properties throughout the treatment area to determine the overall effectiveness of the treatments. Post-treatment sampling will be conducted using the same protocols as the pre-treatment sampling to ascertain effectiveness of the treatments.

Public Information

Residents of affected properties will be invited to a public meeting where officials from the CDFA, the County Agricultural Commissioner's Office, the California Department of Pesticide Regulation, and the Office of Environmental Health Hazard Assessment, will be present to address residents' questions and concerns.

Residents will be notified in writing at least 72 hours in advance of any treatment in accordance with the California Food and Agricultural Code (FAC) sections 5771 – 5779 and 5421 – 5436.

Following the treatment, completion notices will be left with the residents detailing any precautions to take and post-harvest intervals applicable to fruit bearing trees on the property.

Press releases, if issued, will be prepared by the CDFA Information Officer in consultation with the county agricultural commissioner and PDCP staff. Either the county agricultural commissioner or the CDFA Information Officer will serve as the primary contact to the media.

Information concerning the GWSS eradication effort shall be conveyed directly to Local and State political representatives and authorities via letters, emails, and/or faxes.

Treatment information will be posted to the website located at https://www.cdfa.ca.gov/pdcp/PD_GWSS_NOT_Mtg.html. For any questions related to this program, please contact the local county agricultural commissioner's office listed on the treatment notice or the PDCP at 916-900-5024.

Findings

Due to the detection of GWSS, there exists a significant, imminent threat to California's natural environment, agriculture, public and private property, and its economy.

The work plan involving chemical and biological control of this pest is necessary to prevent loss and damage to California's natural environment, agriculture, native wildlife, private and public property, and food supplies.

My decision to adopt findings and take action is based on Sections 24.5, 401.5, 403, 407, 408, 5401-5405, 5761-5764, and 6045-6047 of the FAC.

Karen Ross

Karen Ross, Secretary

3-26-19

Date

PIERCE'S DISEASE CONTROL PROGRAM

RESPONSE/CONTROL PROGRAM FOR PIERCE'S DISEASE AND ITS VECTORS, AND OTHER DESIGNATED PESTS AND DISEASES

FRESNO COUNTY

Objective

To implement an intergovernmental, coordinated state and community-wide plan to provide detection and delimitation of the glassy-winged sharpshooter (GWSS) in FRESNO County and suppress or eradicate any populations as rapidly as possible.

RESPONSIBILITIES

CDFA Responsibilities

- The California Department of Food and Agriculture (CDFA) shall provide training on management practices at least one week prior to any activity occurring. The PEIR is available in its entirety at https://www.cdfa.ca.gov/plant/peir/.

Designated Agency

The FRSNO County Department of Agriculture (County) is designated by the FRESNO County Board of Supervisors as the local public entity to conduct the Pierce's Disease Control Program (PDCP) within the County. The California Department of Food and Agriculture (CDFA) will work in cooperation with the County, the State PDCP Science Advisory Panel, officials in affected counties, the FRESNO County PDCP Task Force (if applicable), and other interested parties in implementing this plan. The CDFA will provide biological control program guidance and support to the County as favorable agents become available.

County Responsibilities

- Act as local public entity for the PDCP activities occurring within the jurisdiction of the county.
- Act as lead liaison to local City Councils, the County Board of Supervisors, county legal counsels, and other county agencies, regarding the PDCP activities.
- The County will ensure all activities follow CDFA management practices and any necessary mitigation measures required are consistent with CDFA's Statewide Pest Prevention Program Final Programmatic Environmental Impact Report (PEIR). The County, prior to conducting PDCP activities, will fill out the Tiering Checklists and follow management practices and mitigation measures as required for a specific activity. The CDFA management practices and mitigation measures are attached, and can also be found in the PEIR Appendix C, https://www.cdfa.ca.gov/plant/peir/docs/final/Volume-

3_Appendices_B-G.pdf. Mitigation Reporting Program at https://www.cdfa.ca.gov/plant/peir/docs/final/Volume-4_Appendices_H-P.pdf, and Findings of Fact at https://www.cdfa.ca.gov/plant/peir/docs/final/Findings-of-Fact-and-Overriding-Considerations.pdf.

- Copies of the completed Checklists must be submitted along with the agreement. To complete the checklist, add in the Project Leader (normally the Commissioner) and County name in the introductory fields (those areas are designated with XXXXX). Also, in the document title (e.g., PDCP XX County Trapping 07 01 18), replace the XX with the county number and replace "County" with the county name. When the contract ends, the county dates and signs a copy of the Checklist and sends that copy to PDCP to signify that the PEIR requirements were implemented.
- Promptly conduct all delimitation and intensive surveys in the county. Additional survey staff may be contracted from the California Conservation Corps upon approval by PDCP. The CDFA will provide on-site expertise, as needed.
- Provide status reports on the results of all surveys, including detailed maps of the surveyed area and infested properties.
- Select appropriate treatments, notify residents, and identify any sensitive sites within the proposed treatment area.
- Direct and coordinate pesticide applications.
- Conduct post-treatment monitoring.

ELEMENTS

Delimitation Survey

The County will immediately conduct a delimitation survey upon discovery of an infestation. The purpose of the survey is to quickly determine the extent of the infestation. The survey will be conducted in accordance with established CDFA protocols. Records of properties surveyed and results of the survey (both positive and negative) will be accurately kept.

Intensive (Property-by-Property Survey)

Following the delimitation survey, the County will complete an intensive survey of all properties within the delimited area to identify the full extent of the infestation.

- Develop and maintain working host records during this intensive survey.
- Develop detailed maps or block folders (property-by-property) of the surveyed and infested area.

Delimitation Traps

Install and monitor delimitation traps radiating in appropriate distances from all live detections of GWSS.

Treatment Options

The following treatment information is based on the option of treating all known infested properties. It is intended as a guideline and may be modified to adapt to local and/or changing situations. At all stages of the program, an assessment will be made as to the probability of success. For example, if GWSS is found to be infesting a very large area or is infesting wide areas of sensitive habitat, the County will immediately consult with the CDFA to determine the preferred course of action.

Treatment Material Selection

A list of registered materials will be reviewed to determine the most appropriate to use based on: 1) registered use as a general treatment for residential plantings; 2) registered on most plant species known to be hosts (feeding and oviposition) for GWSS; and 3) known to control leafhoppers. The list of approved products for residential use is listed in CDFA's Statewide Pest Prevention Program Final PEIR on Page 3-46 of Volume 1 Main Body.

Threatened/Endangered Species/Environmentally Sensitive Areas

The County and the CDFA will identify any threatened/endangered species and/or environmentally sensitive areas within the proposed treatment area before treatments begin. If needed, appropriate mitigation measures will be developed, in consultation with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife, and the CDFA, for these sensitive areas. The County will notify all registered beekeepers near the infested area of the GWSS treatment activities.

Beekeeper Notification

The County will identify registered beekeepers in the treatment zone, in addition to the following:

- Notify registered beekeepers with information about the upcoming treatments.
- Notify ground personnel of any properties that are known to have bees.
- Identify potential unregistered beekeepers by educating ground personnel to be on the lookout for beehives.
- Educate ground personnel on how to handle bee encounters.
- Adhere to label requirements for pollinators.
- Adhere to label requirements for flowering hosts and bloom issues.

Public Outreach

The County will act as lead spokesperson for the PDCP activities within the County. The County, in cooperation with the CDFA, will generate press releases and distribute information to all affected communities.

- A telephone help line will be established and staffed to answer calls concerning the PDCP activities. Multi-lingual speakers may be required to adequately staff this help line. The help line will also be coordinated to include public health and animal health information.

- Informational meetings will be held to advise homeowners and other interested parties of treatment activities.

The CDFA will develop technical information and provide technical support and training, assist in the development and dissemination of literature, and act as a clearinghouse for information to the public and the press.

Medical/Veterinarian Information

The County will contact the FRESNO County Health Officer (Ken Bird, M.D. M.P.H./CHO) with details of any proposed treatment. If Ken Bird-CHO has questions about public health aspects of the program, please contact the Branch Chief of the Pierce's Disease Control Program at 916-900-5024.

Questions relating to Animal Health will be referred to CDFA's Animal Health and Food Safety Services at (916) 900-5002. A "Veterinary Fact Sheet" may be prepared and provided for questions relating to pets or livestock.

Pre-Treatment Notification

Pre-treatment notification will be conducted through the local news media and by door-to-door notification.

- Notices will be in languages appropriate to the affected community and will include information regarding material used, precautions, date of application, and a telephone number and contact for the PDCP staff.
- Notices will be given "door-to-door" to infested properties and adjacent properties.

General Treatment Procedures

Treatments will begin following the intensive survey and after all help lines are established and community relations measures have been taken. Maintenance of good community relations will be essential. All pesticide applications will be made by certified Pest Control Operators under the direction of the County, or by the County with agreement from the PDCP. Pesticides will be used according to registration and label directions. Sound pesticide safety procedures will be followed.

- Interval: As allowed by label.
- Rate: Follow label directions.
- Post-treatment notice with re-entry statement and pre-harvest interval for treated fruits/vegetables.
- Treatment crews will be properly trained and equipped according to established CDFA protocols for treatment of residential properties.
- Property treatment records will be kept.
- The County will ensure that all treatment activities are in compliance with all pesticide laws and regulations.

NPDES (National Pollution Discharge Elimination System) Permit

CDFA is required to report all foliar treatments of pesticides to comply with this permit. The permit covers foliar applications that may result in a discharge of pollutants to waters of the U.S.

All urban/residential treatments of pesticides that counties make to eradicate or suppress GWSS need to have the following information documented and sent to the PDCP at the end of each calendar year.

- The projected start & end dates of the application(s).
- Name of the applicator.
- How much pesticide(s) used (in ounces) and acres given foliar treatment.
- How much pesticide(s) used (in ounces) and acres given soil treatment.
- Impacted water bodies, if any.

Environmental Monitoring

The CDFA, in cooperation with County, will arrange for environmental monitoring to be conducted by the California Department of Pesticide Regulation (CDPR), Environmental Monitoring/Pest Management Branch. The County personnel will work closely with environmental monitoring personnel to identify suitable sites. The following may be monitored:

- Surface water, turf, foliage, available fruits and vegetables, outside air and tank mix.
- Identified sensitive areas.

Additional monitoring may be necessary if needs are identified. However, if sufficient data are gathered indicating no adverse environmental impacts, the environmental monitoring may be modified or deleted from the program. This decision will rest with the CDFA and the County.

Post-Treatment Monitoring

An assessment of the GWSS populations will be conducted on a limited number of selected properties throughout the treatment area to determine the overall effectiveness of the treatments.

- Pre-treatment sampling will be conducted and counts of the GWSS will be made to determine numbers of the GWSS life forms.
- Post-treatment sampling will be conducted using the same protocols to ascertain effectiveness of the treatment(s).

PEST PROFILE

Common Name: Glassy-winged Sharpshooter

Scientific Name: *Homalodisca vitripennis*

Order and Family: Hemiptera, Cicadellidae

Description: The glassy-winged sharpshooter (GWSS) is a relatively large leafhopper, measuring about 0.5 inches long. Adult GWSS are generally dark brown to black when viewed from the top or side, with small yellow dots on the head and thorax. The nymphs look similar to adults except they are smaller, wingless, and grayish in color. Females lay their eggs in masses of about 10 to 12 eggs on the lower surface of leaves. The egg masses resemble green blisters.

History: Although it was first reported in California in 1994, GWSS likely arrived in the state in the late 1980s as egg masses on plants. In 1999, significant vineyard losses in Southern California were determined to be due to GWSS spreading Pierce's disease to grapevines. This was the first indication of the severe threat posed by this new invasive pest.

Distribution: GWSS is native to the southeastern United States and northeastern Mexico. Since its initial introduction into Southern California, GWSS has spread throughout most of Southern California and into parts of the southern San Joaquin Valley.

Life Cycle: GWSS typically has two generations per year and overwinters as an adult. Overwintering adults begin laying eggs in February, with most of egg laying occurring between late March and April. Nymphs hatch in 10 to 14 days and feed on young succulent stems while they progress through five nymphal stages. The first-generation adults appear in May through July, with egg laying occurring between June and October. The nymphs emerging from these egg masses develop into adults, which overwinter and lay eggs the following spring.

Hosts, Range, and Economic Importance: The range of GWSS includes many habitats, including agricultural crops, urban landscapes, native woodlands, and riparian vegetation. The host list includes over 360 genera of plants, and ranges widely from woody plants to annual and perennial herbaceous plants. Since the insect feeds on the nutrient-poor xylem fluid of the plant, GWSS must consume large amounts of fluid to gain enough nutrition to grow and reproduce. Consequently, the adults and nymphs excrete large amounts of liquid while feeding, which gives fruit and foliage a whitewashed appearance. Host preference changes according to the availability and nutritional value of host plants at any given time.

GWSS is a significant vector of *Xylella fastidiosa,* the bacterium that causes Pierce's disease of grapes. Although Pierce's disease has been in California for over 100 years, native vectors do not transmit the bacterium as extensively as GWSS. GWSS is a serious threat to California vineyards because it moves faster and flies greater distances into vineyards than native sharpshooters. It also builds up large populations and can feed on the tougher, lower parts of

grapevine stems. When the GWSS feeds on a plant that is infected with *X. fastidiosa,* it acquires the bacteria, which multiplies within the insect's mouthparts. The sharpshooter then transfers the bacteria to other plants when it feeds. Symptoms include chlorosis and scorching of leaves, with entire grapevines dying within one to five years.

In California, in addition to the strains of *X. fastidiosa* that cause Pierce's disease, there are also strains that cause other plant diseases such as alfalfa dwarf, almond leaf scorch, mulberry leaf scorch, oleander leaf scorch, and sweetgum dieback. At this time there is no known cure for any of these diseases.

Host List:

Common Name	**Scientific Name**
Abelia	*Abelia* spp.
Acacia	*Acacia* spp.
Aeonium	*Aeonium* spp.
African tulip tree	*Spathodea* spp.
Agapanthus	*Agapanthus* spp.
Agave	*Agave* spp.
Albizzia	*Albizia* spp.
Alder	*Alnus* spp.
Aleurites	*Aleurites* spp.
Aloe plant	*Aloe* spp.
Amaranth	*Amaranthus* spp.
American linden tree	*Tilia* spp.
Ananas	*Ananas* spp.
Angel's trumpet tree	*Brugmansia* spp.
Annona (cherimoya)	*Annona* spp.
Apple	*Malus* spp.
Aptenia	*Aptenia* spp.
Aralia ivy	*Fatshedera* spp.
Arborvitae	*Thuja* spp.
Arizona rosewood	*Vauquelinia* spp.
Ash	*Fraxinus* spp.
Asparagus	*Asparagus* spp.
Aspidistra	*Aspidistra* spp.
Australian bluebell creeper	*Sollya* spp.
Australian tree fern	*Alsophila* spp.
Avocado	*Persea* spp.
Ayo ginger	*Hedychium* spp.
Azalea	*Rhododendron* spp.
Baccharis	*Baccharis* spp.
Banana	*Musa* spp.
Barbados Gooseberry	*Pereskia* spp.
Barberry	*Berberis* spp.
Basket plant	*Aeschynanthus* spp.
Bauhinia	*Bauhinia* spp.
Beard-tongue	*Penstemon* spp.
Bee bee Tree	*Tetradium* spp.
Beech tree	*Fagus* spp.
Begonia	*Begonia* spp.
Bignonia	*Bignonia* spp.
Birch	*Betula* spp.

Bird-of-paradise	*Strelitzia* spp.
Blackberry	*Rubus* spp.
Blood-trumpet	*Distictus* spp.
Blue bells	*Campanula* spp.
Blue sky flower	*Thunbergia* spp.
Blueberry	*Vaccinium* spp.
Boneset	*Eupatorium* spp.
Bottle tree	*Brachychiton* spp.
Bottlebrush	*Callistemon* spp.
Bougainvillea	*Bougainvillea* spp.
Box tree	*Lophostemon* spp.
Boxleaf azara	*Azara* spp.
Boxwood	*Buxus* spp.
Brazilian dutchman's pipe	*Aristolochia* spp.
Brunfelsia	*Brunfelsia* spp.
Buckthorn	*Rhamnus* spp.
Bugleweed	*Ajuga* spp.
Butterfly bush	*Buddleja* spp.
Cactus	*Opuntia* spp.
Caesalpinia	*Caesalpinia* spp.
Calla lily	*Zantedeschia* spp.
Camellia	*Camellia* spp.
Canna	*Canna* spp.
Cape chestnut	*Calodendrum* spp.
Cardboard sago	*Zamia* spp.
Carob	*Ceratonia* spp.
Castanospermum	*Castanospermum* spp.
Castorbean	*Ricinus* spp.
Cat's claw	*Macfadenya* spp.
Catawba	*Catalpa* spp.
Ceratostigma	*Ceratostigma* spp.
Cestrum	*Cestrum* spp.
Champak	*Michelia* spp.
Chaste tree	*Vitex* spp.
Chinaberry	*Melia* spp.
Chinese tallow	*Sapium (Triadica)* spp.
Chinquapin	*Castanopsis* spp.
Chitalpa	*Chitalpa* spp.
Chokecherry	*Aronia* spp.
Christmas cactus	*Schlumbergera* spp.
Chrysanthemum	*Chrysanthemum* spp.
Cinnamomum	*Cinnamomum* spp.
Citrus	*Citrus* spp.
Cleyera	*Cleyera* spp.
Clytostoma	*Clytostoma* spp.
Cocculus	*Cocculus* spp.
Cocklebur	*Xanthium* spp.
Cocos	*Cocos* spp.
Coffee	*Coffea* spp.
Coleus	*Coleus* spp.
Coneflower	*Rudbeckia* spp.
Coprosma	*Coprosma* spp.
Coral tree	*Erythrina* spp.
Coreopsis	*Coreopsis* spp.
Cotoneaster	*Cotoneaster* spp.
Cotton	*Gossypium* spp.

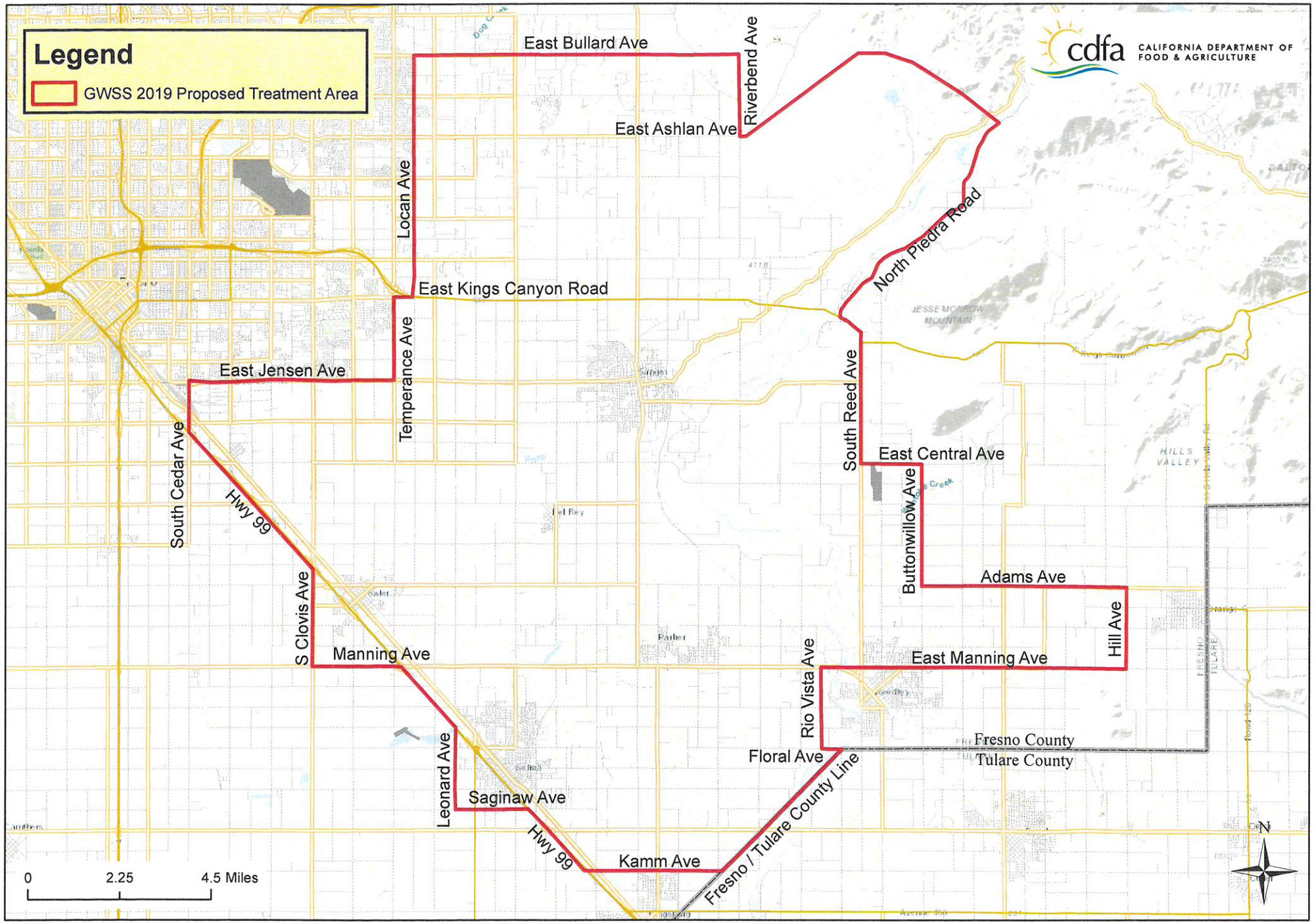
Cottonwood	*Populus* spp.
Cranesbill	*Geranium* spp.
Crape myrtle	*Lagerstroemia* spp.
Crassula	*Crassula* spp.
Cupaniopsis	*Cupaniopsis* spp.
Cuphea	*Cuphea* spp.
Cycad	*Cycas* spp.
Date palm	*Phoenix* spp.
Daylily	*Hemerocallis* spp.
Deodar cedar	*Cedrus* spp.
Desert willow	*Chilopsis* spp.
Dianella	*Dianella* spp.
Dianthus	*Dianthus* spp.
Dietes	*Dietes* spp.
Dodonaea	*Dodonaea* spp.
Dogwood	*Cornus* spp.
Dracaena	*Dracaena* spp.
Elaeagnus	*Elaeagnus* spp.
Elaeocarpus	*Elaeocarpus* spp.
Elderberry	*Sambucus* spp.
Elephant Ear	*Colocasia* spp.
Elm	*Ulmus* spp.
Ensete	*Ensete* spp.
Eriobotrya	*Eriobotrya* spp.
Escallonia	*Escallonia* spp.
Eucalyptus	*Eucalyptus* spp.
Eugenia	*Eugenia* spp.
Euonymus	*Euonymus* spp.
Euphorbia	*Euphorbia* spp.
Euryops	*Euryops* spp.
Evening primrose	*Oenothera* spp.
Evergreen clematis	*Clematis* spp.
Evergreen grape	*Rhoicissus* spp.
Feijoa	*Feijoa* spp.
Fig	*Ficus* spp.
Firewheel tree	*Stenocarpus* spp.
Fishtail	*Caryota* spp.
Five finger	*Pseudopanax* spp.
Flax lily	*Phormium* spp.
Fleabane	*Erigeron* spp.
Floss-silk tree	*Chorisia* spp.
Foxglove	*Digitalis* spp.
Fringe tree	*Chionanthus* spp.
Frogfruit	*Phyla* spp.
Gardenia	*Gardenia* spp.
Gazania	*Gazania* spp.
Geijera	*Geijera* spp.
Giant turf lily	*Liriope* spp.
Ginger	*Alpinia* spp.
Ginko	*Ginkgo* spp.
Gladiolus	*Gladiolus* spp.
Gold cup	*Solandra* spp.
Gold dust plant	*Aucuba* spp.
Golden dewdrop	*Duranta* spp.
Golden-bells	*Forsythia* spp.
Golden-rain tree	*Koelreuteria* spp.

Goldenrod	*Solidago* spp.
Grape	*Vitis* spp.
Grape ivy	*Cissus* spp.
Green ebony	*Jacaranda* spp.
Grewia	*Grewia* spp.
Griselinia	*Griselinia* spp.
Guava	*Psidium* spp.
Guinea Gold Vine	*Hibbertia* spp.
Hardenbergia	*Hardenbergia* spp.
Hebe	*Hebe* spp.
Hibiscus	*Hibiscus* spp.
Holly	*Ilex* spp.
Hollyhock	*Althaea* spp.
Honey locust	*Gleditsia* spp.
Honey myrtle	*Melaleuca* spp.
Honeysuckle	*Lonicera* spp.
Hornbeam	*Carpinus* spp.
Horsechestnut	*Aesculus* spp.
Hydrangea	*Hydrangea* spp.
Hymenosporum	*Hymenosporum* spp.
Indian Rosewood	*Dalbergia* spp.
Indian snakeroot tree	*Rauvolfia* spp.
Itea	*Itea* spp.
Ivy	*Hedera* spp.
Japanese aralia	*Aralia* spp.
Japanese fatsia	*Fatsia* spp.
Japanese Maple	*Acer* spp.
Japanese silvertree	*Neolitsea* spp.
Jasmine	*Jasminum* spp.
Jimsonweed	*Datura* spp.
Jojoba	*Simmondsia* spp.
Jujube	*Ziziphus* spp.
Juniper	*Juniperus* spp.
Kaffir lily	*Clivia* spp.
Kaffir plum	*Harpephyllum* spp.
Kalanchoe	*Kalanchoe* spp.
Kangaroo Paw	*Anigozanthos* spp.
Kumquat	*Fortunella* spp.
Lady palm	*Rhapis* spp.
Lambsquarter	*Chenopodium* spp.
Laurel	*Laurus* spp.
Leadwort	*Plumbago* spp.
Lemon verbena	*Aloysia* spp.
Leptospermum	*Leptospermum* spp.
Lettuce	*Lactuca* spp.
Leucodendron	*Leucodendron* spp.
Lilac	*Syringa* spp.
Lionstail	*Leonotis* spp.
Lippia	*Lippia* spp.
Liriope	*Liriope* spp.
Lithocarpus	*Lithocarpus* spp.
Locust	*Robinia* spp.
Loropetalum	*Loropetalum* spp.
Luma	*Luma* spp.
Lychee	*Litchi* spp.
Macadamia	*Macadamia* spp.

Madagascar jasmine	*Stephanotis* spp.
Madagascar periwinkle	*Catharanthus* spp.
Magnolia	*Magnolia* spp.
Majestic palm	*Ravenea* spp.
Mallow	*Malva* spp.
Mandevilla	*Mandevilla* spp.
Mango	*Mangifera* spp.
Manzanita	*Arctostaphylos* spp.
Marigold	*Tagetes* spp.
Markhamia	*Markhamia* spp.
Matilija poppy	*Romneya* spp.
Maytenus	*Maytenus* spp.
Mesquite	*Prosopis* spp.
Metrosideros	*Metrosideros* spp.
Mexican bluebells	*Ruellia* spp.
Mexican Palo Verde	*Parkinsonia* spp.
Milkweed	*Asclepias* spp.
Milkwort	*Polygala* spp.
Mock orange	*Philadelphus* spp.
Monstera	*Monstera* spp.
Moringa	*Moringa* spp
Morning glory	*Ipomoea* spp.
Mother fern	*Asplenium* spp.
Mountain ash	*Sorbus* spp.
Mountain mahogany	*Cercocarpus* spp.
Mulberry	*Morus* spp.
Myoporum	*Myoporum* spp.
Myrsine	*Myrsine* spp.
Myrtle	*Myrtus* spp.
Nandina	*Nandina* spp.
Natal Plum	*Carissa* spp.
New Zealand laurel	*Corynocarpus* spp.
Oak	*Quercus* spp.
Oleander	*Nerium* spp.
Olive	*Olea* spp.
Orange Jessamine; curry leaf	*Murraya* spp.
Oregon grape	*Mahonia* spp.
Osmanthus	*Osmanthus* spp.
Osteospermum	*Osteospermum* spp.
Palms	*Chamaedorea* spp.
Palo Verde	*Cercidium* spp.
Pandorea	*Pandorea* spp.
Papaya	*Carica* spp.
Passion fruit	*Passiflora* spp.
Pear	*Pyrus* spp.
Pelargonium	*Pelargonium* spp.
Pepper plant	*Piper* spp.
Pepper, chile	*Capsicum* spp.
Periwinkle	*Vinca* spp.
Persimmon	*Diospyros* spp.
Peruvian lily	*Alstroemeria* spp.
Philodendron	*Philodendron* spp.
Phlox	*Phlox* spp.
Photinia	*Photinia* spp.
Pincushion	*Leucospermum* spp.
Pine	*Pinus* spp.

Pistachio	*Pistacia* spp.
Pithecellobium	*Pithecellobium* spp.
Pittosporum	*Pittosporum* spp.
Plectranthus	*Plectranthus* spp.
Podocarpus	*Podocarpus* spp.
Pokeweed	*Phytolacca* spp.
Polygonum	*Polygonum* spp.
Pomegranate	*Punica* spp.
Portulacaria	*Portulacaria* spp.
Powderpuff	*Calliandra* spp.
Privet	*Ligustrum* spp.
Protea	*Protea* spp.
Prunus	*Prunus* spp.
Pyracantha/Firethorn	*Pyracantha* spp.
Queen Palm	*Arecastrum (Syagrus)* spp.
Quince	*Cydonia* spp.
Ragweed	*Ambrosia* spp.
Raphiolepis	*Raphiolepis* spp.
Red emu bush	*Eremophila* spp.
Redbud	*Cercis* spp.
Redroot	*Ceanothus* spp.
Rock rose	*Cistus* spp.
Rose	*Rosa* spp.
Sage	*Salvia* spp.
Sapium	*Sapium* spp.
Sassafras	*Sassafras* spp.
Sawleaf Zelkova	*Zelkova* spp.
Scalebroom	*Lepidospartum* spp.
Schinus	*Schinus* spp.
Seaforthia	*Archontophoenix* spp.
Sedum	*Sedum* spp.
Senna	*Cassia* spp.
Sentry palm	*Howea* spp.
Serviceberry	*Amelanchier* spp.
Shrub verbena	*Lantana* spp.
Snapdragon	*Antirrhinum* spp.
Solanum	*Solanum* spp.
Sonchus	*Sonchus* spp.
Sorghum	*Sorghum* spp.
Speedwell	*Veronica* spp.
Spider flower	*Grevillea* spp.
Spiderwort	*Tradescantia* spp.
Spurge	*Pachysandra* spp.
St. Bernard's lily	*Chlorophytum* spp.
St. John's-wort	*Hypericum* spp.
Staghorn fern	*Platycerium* spp.
Statice	*Limonium* spp.
Strawberry tree	*Arbutus* spp.
Sumac	*Rhus* spp.
Sun king sophora	*Sophora* spp.
Sunflower	*Helianthus* spp.
Sweet box	*Sarcococca* spp.
Sweet gum	*Liquidambar* spp.
Sword fern	*Nephrolepis* spp.
Sycamore	*Platanus* spp.
Syzygium	*Syzygium* spp.

Tecomaria	*Tecomaria* spp.
Ternstroemia	*Ternstroemia* spp.
Texas Ranger	*Leucophyllum* spp.
Thornless hawthorn	*Crataegus* spp.
Threadleaf aralia	*Aralia* spp.
Ti	*Cordyline* spp.
Tipu Tree	*Tipuana* spp.
Toyon	*Heteromeles* spp.
Trachelospermum	*Trachelospermum* spp.
Transvaal daisy	*Gerbera* spp.
Tree fern	*Dicksonia* spp.
Tree tobacco	*Nicotiana* spp.
Tristania	*Tristania* spp.
Trumpet creeper	*Campsis* spp.
Trumpet tree	*Tabebuia* spp.
Tulbaghia	*Tulbaghia* spp.
Tulip tree	*Liriodendron* spp.
Tupelo	*Nyssa* spp.
Tupidanthus	*Tupidanthus* spp.
Umbrella catchbird tree	*Pisonia* spp.
Umbrella tree	*Schefflera* spp.
Umbrella wort	*Mirabilis* spp.
Viburnum	*Viburnum* spp.
Vigna	*Vigna* spp.
Violet	*Viola* spp.
Walnut	*Juglans* spp.
Washington palm	*Washingtonia* spp.
Water gum	*Tristaniopsis* spp.
White sapote	*Casimiroa* spp.
Wild bergamot	*Monarda* spp.
Willow	*Salix* spp.
Willow myrtle	*Agonis* spp.
Wind palm	*Trachycarpus* spp.
Wisteria	*Wisteria* spp.
Wollemia	*Wollemia* spp.
Woodbine	*Parthenocissus* spp.
Xylosma	*Xylosma* spp.
Yellow jessamine	*Gelsemium* spp.
Yellowbells	*Tecoma* spp.
Yucca	*Yucca* spp.
Zea	*Zea* spp.
Zinnia	*Zinnia* spp.

Glassy-Winged Sharpshooter - FRESNO COUNTY - MARCH 20, 2019

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