

Boxwood Blight

Calonectria pseudonaviculata
(aka *Cylindrocladium pseudonaviculatum*)

COUNTY OF SAN MATEO

AGRICULTURE/WEIGHTS & MEASURES





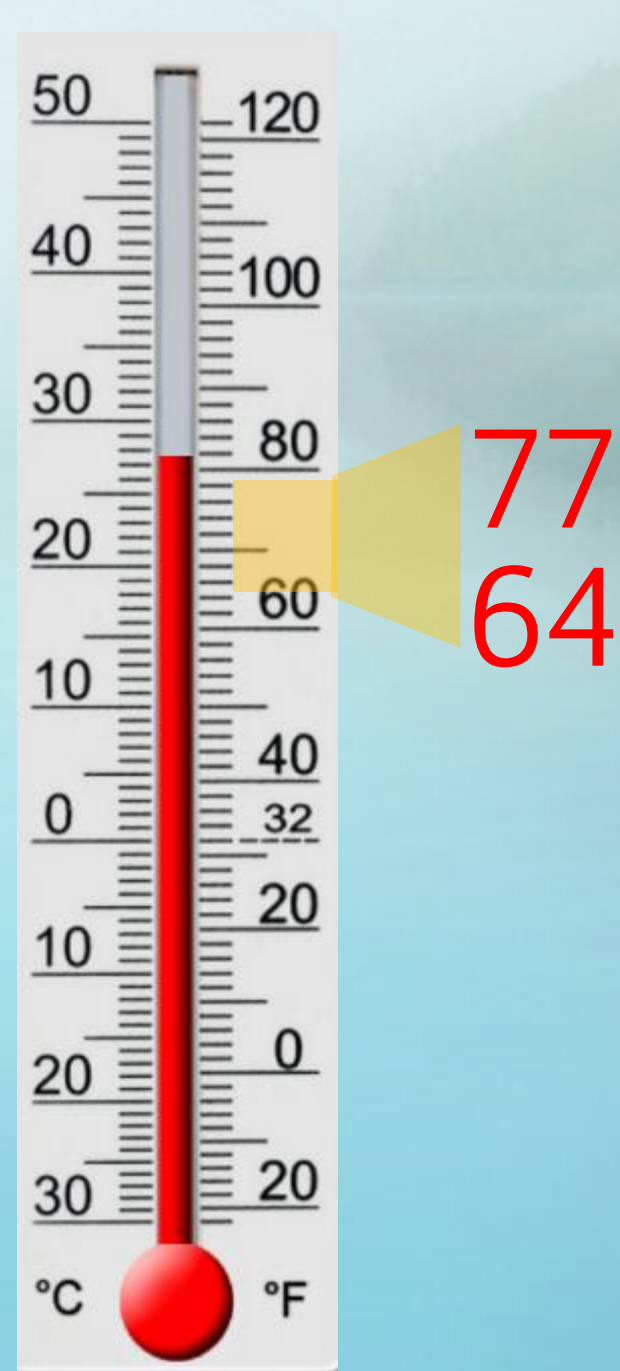
Hosts

- *Buxus* species:
 - Some are very susceptible
 - Some are tolerant, but can carry fungus.
- *Pachysandra procumbens*, *P. terminalis* (Japanese spurge)
- *Sarcococca spp.* (sweet box)



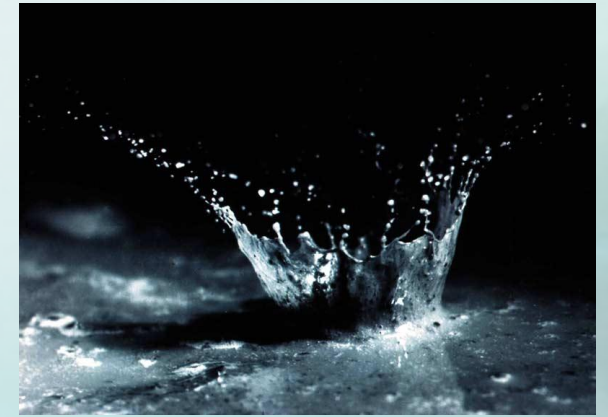
Conditions

- Can survive in fallen leaves for up to 5 years.
- Produces spores in a sticky, slimy matrix when environment becomes suitable
- Needs high humidity or free water.
- Infection occurs quickly in warm (64°F to 77°F), wet conditions.
- No infections occur below 43°F. Young leaves can become infected at 54°F if wet for at least 48 hours.



Transmission

- Short-distance: water or rain splash
- Contaminated equipment/shoes/clothing
- Infected nursery stock
- Infected plant debris/mulch/soil
- Insects, birds
- Spores unlikely to travel long distances by wind alone.



Symptoms (images from pnwhandbooks.org)

Spots on both
leaves and stems

-Luisa Santamaria, 2012



Dark or light brown spots on leaves, often in a circular or zonate pattern.

-OSU Plant Clinic Image, 2014



Symptom: Leaf spot



Margery Daughtrey –Cornell University LHREC

The fungal pathogen infects leaves and branches of boxwoods, causing light or dark brown leaf spots with a dark or diffuse border.



M. Paret
UF IFAS NFREC

Lesions of various shapes on the leaves.

*-Karl Puls, Oregon
Department of Agriculture,
2011.*



Whole leaves and stems can become blighted.

-OSU Plant Clinic Image, 2013.



Stem with lesions and defoliation.

-Karl Puls, Oregon Department of Agriculture, 2012.

- The stem lesions might appear before the leaves look affected.



Defoliation of lower branches.

-Karl Puls, Oregon
Department of
Agriculture, 2011



Symptom: Leaf drop



Blighted leaves that remain attached to the plant after death are NOT a symptom of Boxwood blight

Images from San Mateo County











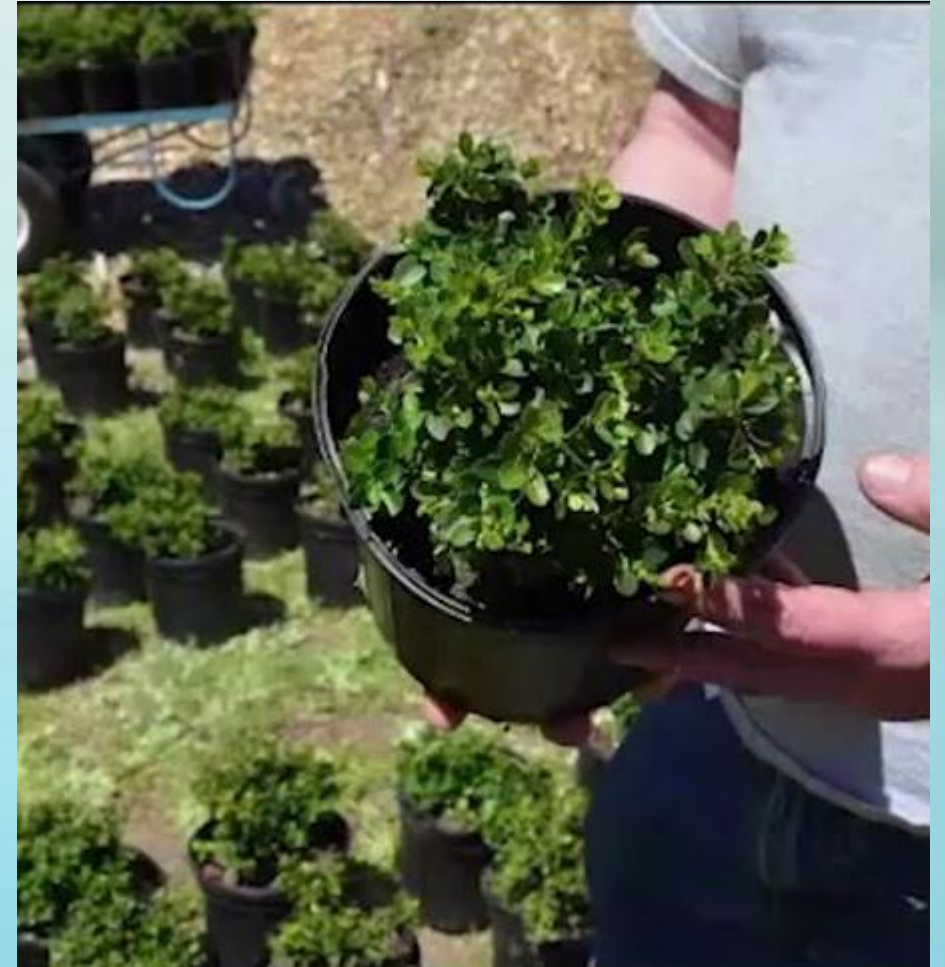






SCOUTING

- Inspect the lower and interior canopy for symptoms of the disease.
- Be sure to part the plant and examine interior leaves and stems for spots and streaks.
- INSPECT and ISOLATE new plants for 3 weeks.
- REPORT suspect plants to our department.
- Meanwhile, PREVENT SPREAD from suspect plants via contaminated equipment, shoes, clothing, clippings, soil or mulch.
- Management will likely require **chemical control**...so prevention is vital!



Alternative:
Ilex crenata (Japanese Holly)



Asian Citrus Psyllid (ACP)

- ▶ *Diaphorina citri*
- ▶ Can Transmit “Citrus Greening Disease” (Huanglongbing or HLB)
- ▶ Large parts of So. Cal under quarantine for ACP
- ▶ Greening Disease found in LA and Orange County



Asian Citrus Psyllis (ACP)



A long list of possible host plants are regulated:

All nursery stock, plants, plant parts, including green waste, and plant products capable of propagation, except seed extracted from fruit of:

Aegle marmelos (bael, Bengal quince, golden apple, bela, milva)
Aeglopsis chevalieri (Chevalier's aeglopsis)
Afraegle gabonensis (Gabon powder-flask)
Afraegle paniculata (Nigerian powder-flask)
Amyris madrensis (mountain torchwood)
Atalantia spp. including *Atalantia monophylla* (Indian atalantia)
Balsamocitrus dawei (Uganda powder-flask)
Bergia (= *Murraya*) *koenigii* (curry leaf)
Calodendrum capense (Cape chestnut)
Choisya arizonica (Arizona orange)
Choisya ternate (Mexican orange) X *Citroncirus webberi*
Citropsis articulata (Katimboro, Muboro, West African cherry orange)
Citropsis gilletiana (cherry-orange)
Citrus aurantiifolia (lime, Key lime, Persian lime, lima, limón agrio, limón ceutí, lima mejicana, limero)
Citrus aurantium (sour orange, Seville orange, bigarde, marmalade orange, naranja agria, naranja amarga)
Citrus hystrix (Mauritius papeda, Kaffir lime)
Citrus jambhiri (rough lemon, jambhiri-orange, limón rugoso, rugoso)
Citrus limon (lemon, limón, limonero)
Citrus madurensis (=X *Citrofortunella microcarpa*)
Citrus maxima (pummelo, pomelo, shaddock, pompelmous, toronja)
Citrus medica (citron, cidra, cidro, toronja)
Citrus meyeri (Meyer lemon, dwarf lemon)
Citrus x nobilis (king mandarin, tangor, Florida orange, King-of-Siam)
Citrus x paradisi (grapefruit)
Citrus reticulata (mandarin, tangerine, mandarina)
Citrus sinensis (sweet orange, orange, naranja, naranja dulce)

BERGIA CHOISYA

Citrus spp.
Clausena anisum-olens (anis)
Clausena excavata (clausena)
Clausena indica (clausena)
Clausena lansium (wampi, wampee)
Eremocitrus glauca (Australian desert lime)
Eremocitrus hybrid
Esenbeckia berlandieri
Fortunella crassifolia (Meiwa kumquat)
Fortunella margarita (Nagami kumquat, oval kumquat)
Fortunella polyandra (Malayan kumquat)
Fortunella spp.
Limonia acidissima (Indian wood apple)
Merrillia caloxylon (flowering merillia)
Microcitrus australasica (finger-lime)
Microcitrus australis (Australian round-lime)
Microcitrus papuana (desert-lime)
X *Microcitronella* spp.
Murraya spp. (curry leaf, orange-jasmine, Chinese-box, naranjo jazmín)
Naringi crenulata (naringi)
Pamburus missionis (pamburus, = *Atalantia missionis*)
Poncirus trifoliata (trifoliolate orange, naranjo trébol)
Severinia buxifolia (Chinese box-orange)
Swinglea glutinosa (tabog)
Tetradium ruticarpum (evodia, wu zhu yu)
Toddalia asiatica (orange climber)
Triphasia trifolia (trifoliolate limeberry, triphasia)
Vepris (= *Toddalia*) *lanceolata* (white ironwood)
Zanthoxylum fagara (wild lime, lime prickly-ash)



EGGS



NYMPHS

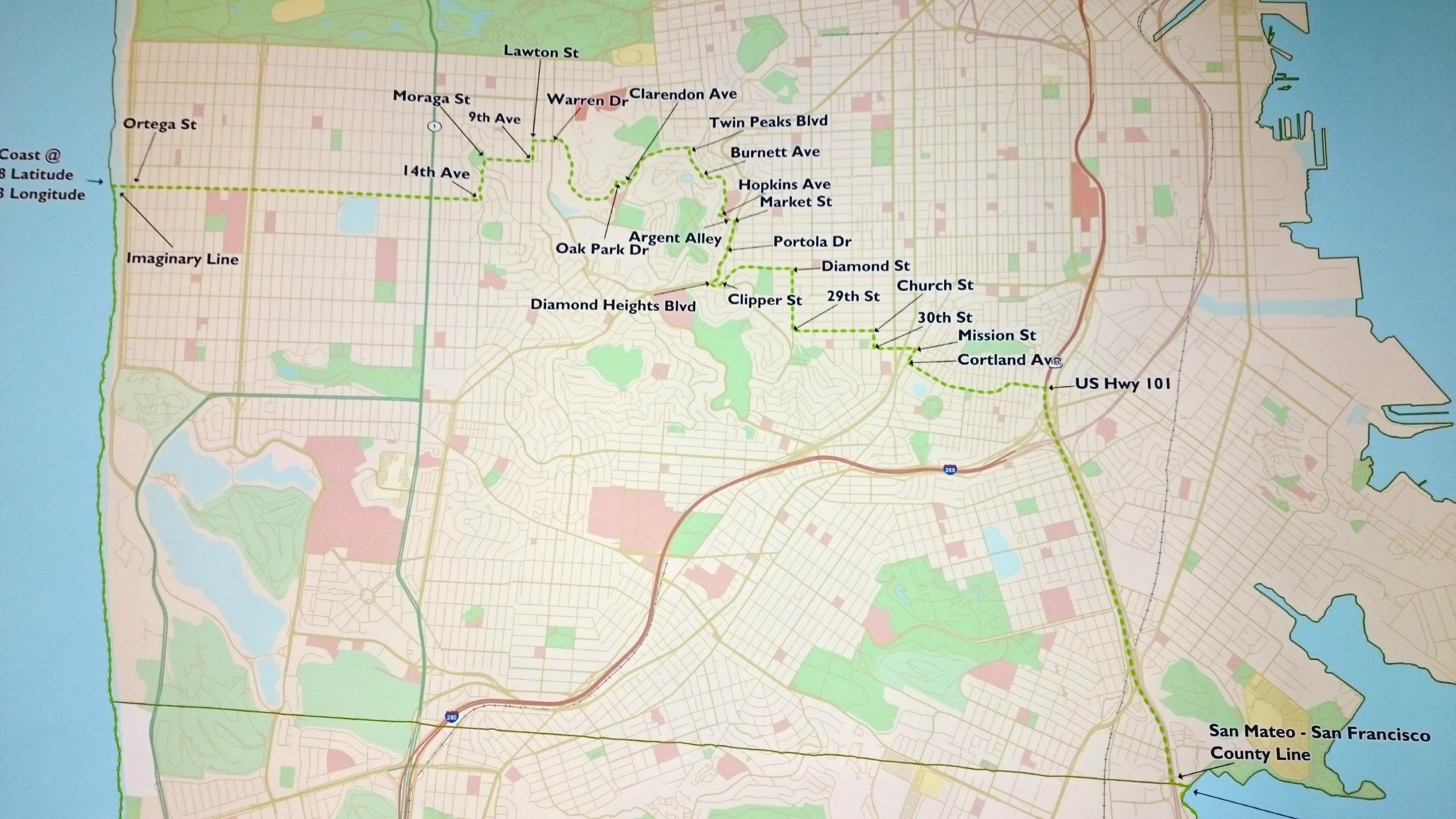


WAXY
SECRETIONS
of NYMPHS

Asian Citrus Psyllid in San Mateo County

- ▶ Found in late 2015 in Daly City and Pacifica
- ▶ Found in February 2017 in San Bruno
- ▶ Part of County is under quarantine
- ▶ Compliance Agreements to Retail and Production nurseries within the quarantine area
- ▶ **MOVEMENT IS FORBIDDEN** without a Compliance Agreement





Lawton St

Moraga St

9th Ave

14th Ave

Warren Dr

Clarendon Ave

Twin Peaks Blvd

Burnett Ave

Hopkins Ave

Market St

Oak Park Dr

Argent Alley

Portola Dr

Diamond St

Diamond Heights Blvd

Clipper St

29th St

Church St

30th St

Mission St

Cortland Ave

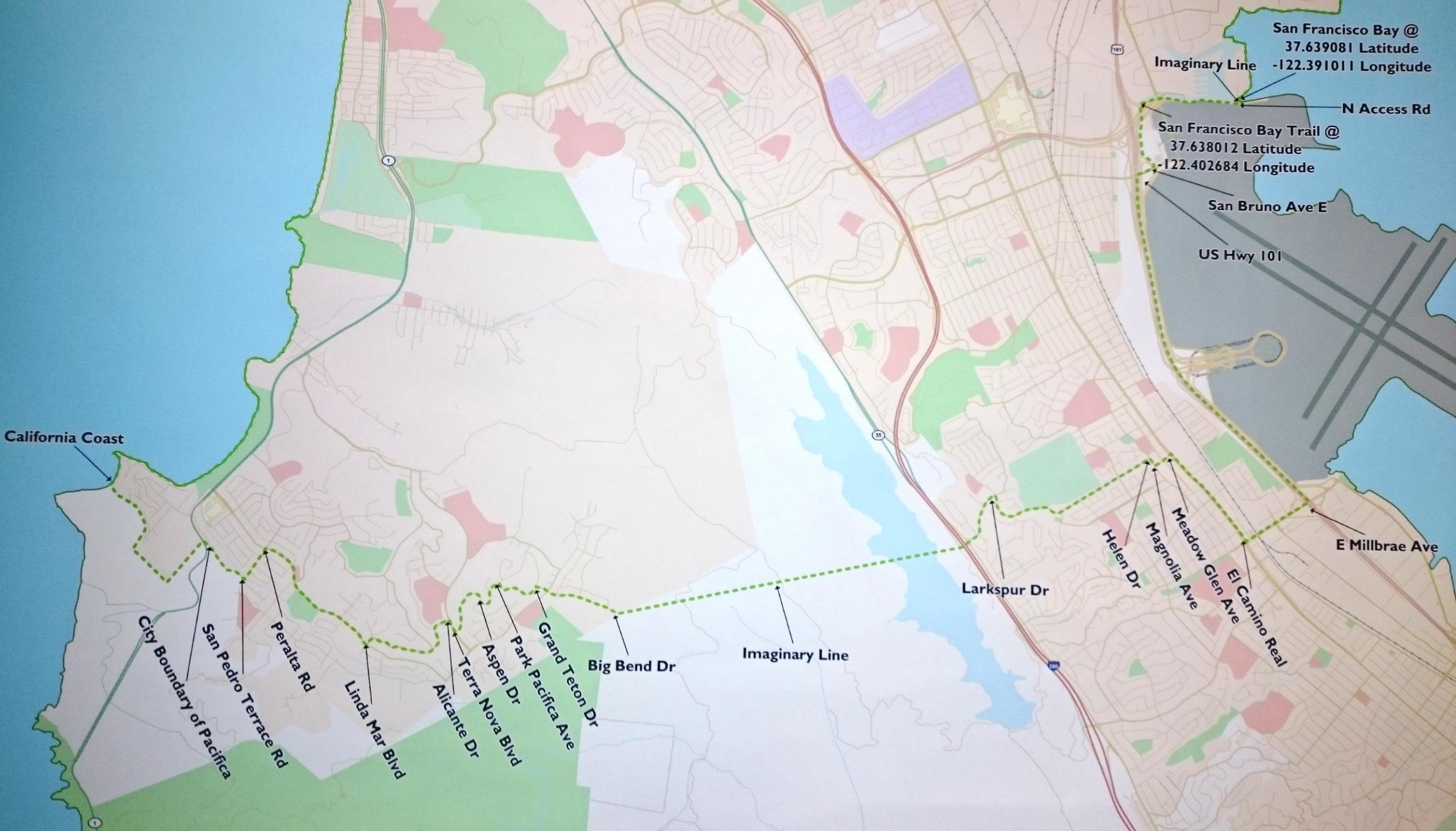
US Hwy 101

Ortega St

Coast @
38 Latitude
122 Longitude

Imaginary Line

San Mateo - San Francisco
County Line



San Francisco Bay @
37.639081 Latitude
-122.391011 Longitude

Imaginary Line
N Access Rd

San Francisco Bay Trail @
37.638012 Latitude
-122.402684 Longitude

San Bruno Ave E
US Hwy 101

California Coast

City Boundary of Pacifica
San Pedro Terrace Rd
Peralta Rd

Linda Mar Blvd
Alicante Dr
Aspen Dr
Park Pacifica Ave
Grand Teton Dr

Big Bend Dr

Imaginary Line

Larkspur Dr

Helen Dr
Magnolia Ave
Meadow Glen Ave
El Camino Real

E Millbrae Ave

Nursery Stock in Quarantine Area

- ▶ Blue tag – produced and treated outside of quarantine area, but shipped into quarantine area
- ▶ Yellow Tag – treated within quarantine area and must stay in quarantine area
- ▶ Regardless of original tag color, must stay **WITHIN** quarantine!!!!



- ▶ **Yellow** tagged must be treated UNDER REGULATORY SUPERVISION with both a systemic and foliar pesticide to move **within the area** quarantined for ACP
- ▶ Systemic treatment must be applied no more than 90 days prior to movement.
- ▶ Prevention will mean lower pesticide use in our area!



- Soil drench with imidacloprid (Merit 2F)
- Foliar treatment with cyfluthrin (Tempo SC Ultra)

Scouting

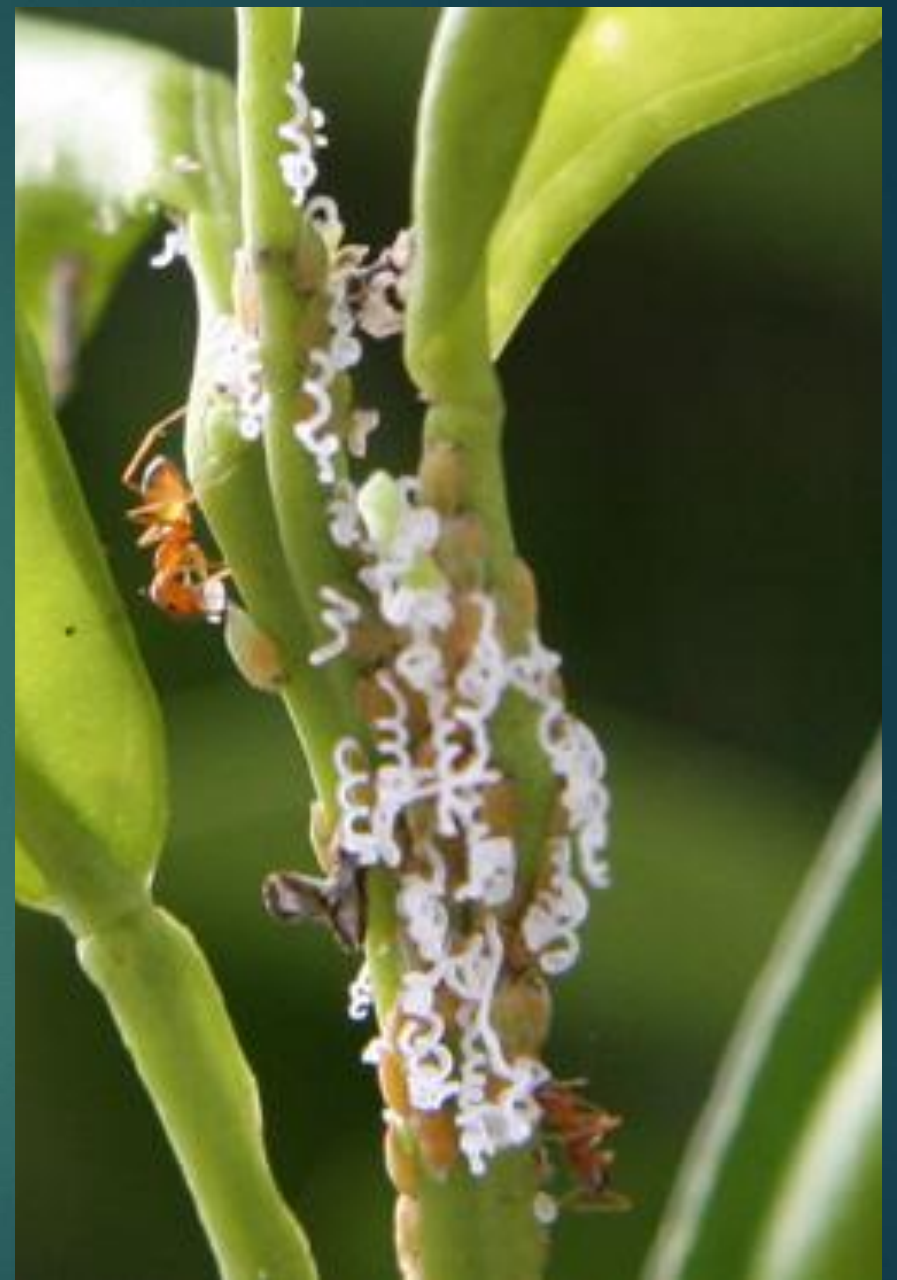
- ▶ Inspect tiny new leaves (feather flush growth) for damage whenever new leaves are forming:

Mature trees: Spring and Fall

Young trees and Lemons:

periodically during warm weather.

- ▶ Look for signs of ACP feeding and damage: twisted leaves, waxy deposits, honeydew, sooty mold, & adults.



Also scout for Greening Disease

- ▶ Leaf symptoms:
blotchy mottle,
yellow veins,
vein corking or
green islands





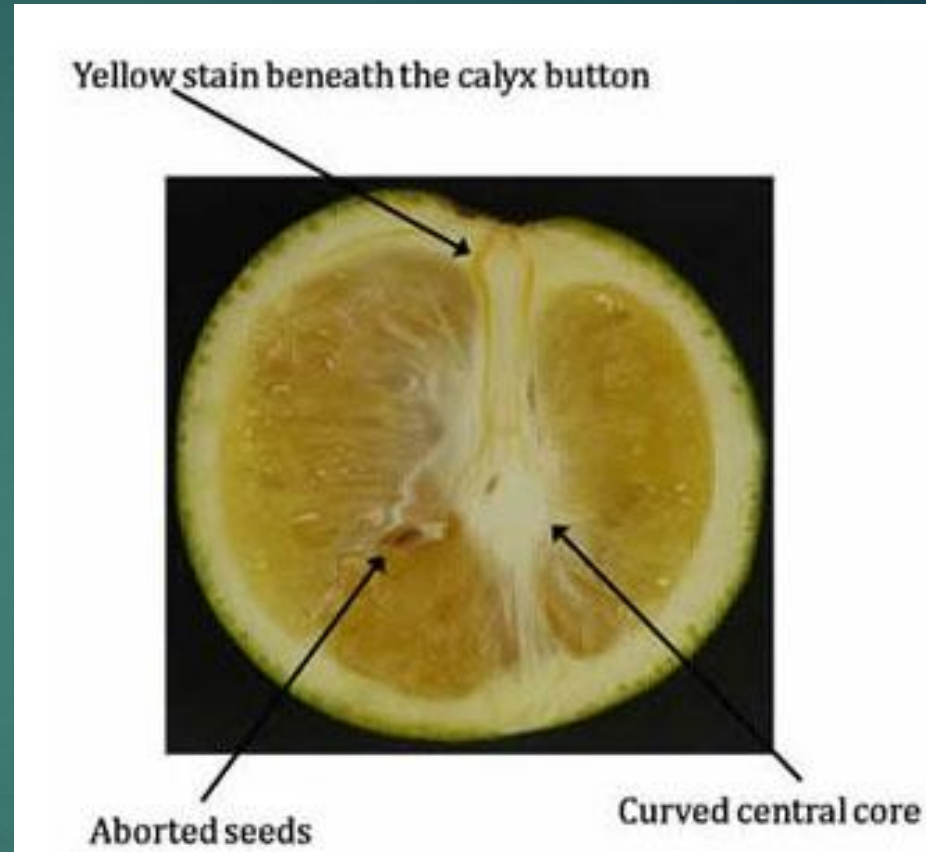
Pattern same on both sides (Nutrient Deficiency)



Leaf with blotchy mottle

Pattern not same on both sides (Greening Disease)

Fruit symptoms



If you find
suspected ACP,
Citrus Greening, or
Boxwood Blight...

please contact
our department...



**San Mateo County
Department of
Agriculture**

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