

ZONE OF INFESTATION EXPANSION PROPOSAL:

GOLDSPOTTED OAK BORER

San Bernardino/Riverside/Orange/Los Angeles Counties



Prepared by:

David Haas, CAL FIRE – Forester I, San Bernardino Unit
Kim Corella, CAL FIRE – Forest Pest Specialist, Southern Region

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REQUEST

It is requested that the Director of the Department of Forestry and Fire Protection (Director), with the approval of the Board of Forestry and Fire Protection (Board), pursuant to Public Resource Code (PRC) 4716, declare the existence of a Zone of Infestation for the goldspotted oak borer (GSOB) for areas of susceptible host types for San Bernardino, Riverside, Orange and Los Angeles Counties with boundaries as defined in this document.

This document is provided in support of these requests.

DISCUSSION

The goldspotted oak borer (*Agrilus auroguttatus*), not native to California, was first identified in San Diego County in 2008. Subsequent dendrochronology studies have determined that the pest was actually first introduced in the county in the mid-90s, but it was masked by drought-caused tree mortality. GSOB has killed tens of thousands of trees in various communities and woodland areas in San Diego County and hundreds of trees in Riverside County, resulting in millions of dollars of remediation costs and property value loss. A GSOB Zone of Infestation (ZOI) for San Diego County was identified and approved by the Director and the Board in the fall of 2012. Because of the discovery of infested trees in Riverside County, the Director and the Board established a ZOI in Riverside County in December of 2014. Zones of infestation were subsequently established in Orange County and Los Angeles Counties in 2016, and in San Bernardino County in 2019 where hundreds of oaks have been lost to GSOB. The designation of these ZOIs significantly will allow state and local officials to take immediate action to mitigate new infestation sites as well as continue to bolster the effort against GSOB and elevate the level of awareness of its potential threat to the state.

Unfortunately, five new infestations were discovered outside the existing GSOB Zones of Infestation in San Bernardino, Riverside and Orange Counties. These infestations were found in Sugarloaf, Moonridge and Wrightwood in San Bernardino County, Hagador Canyon in Riverside County and Trabuco Canyon in Orange County.

Due to the movement of infested firewood throughout the state this insect is moving much faster than its predicted natural spread range of 6 miles per year. It's because of this movement of GSOB infested firewood that the GSOB Zone of Infestation should be expanded in the infested counties to include all areas of the susceptible oak species, coast live oak (*Quercus agrifolia*), California black oak (*Quercus kelloggii*) and canyon live oak (*Quercus chrysolepsis*).

The Sugarloaf, Moonridge and Wrightwood Infestations in San Bernardino County:

Sugarloaf is an unincorporated residential community area less than a mile south of Big Bear City and 8 miles from the eastern area of Big Bear Lake in the San Bernardino Mountains. Sugarloaf is located at approximately 7,000 feet in elevation. Moonridge is a small community located 2 miles west from Sugarloaf. The main GSOB host tree species in the area is California black oak (*Quercus kelloggii*). The forest overstory is mixed conifer with a heavy black oak component and as you move east and north this transitions to a pinyon-juniper vegetation type. In July and August 2019, Sugarloaf and Moonridge respectively, were found to have new infestations of GSOB. Two black oaks were confirmed to be infested with GSOB in Sugarloaf with one being an amplifier tree. One black oak in Moonridge was confirmed to be infested with GSOB. Additional surveys at each location were limited to the street where the infested trees were found and onto adjacent forest service land. No other GSOB infested trees were found although additional surveys are needed. These new infestations at Moonridge and Sugarloaf are 13.6 miles and 15 miles respectively from the infestation in Oak Glen, CA.

Wrightwood is a pine covered valley with black oaks mixed throughout located in the San Gabriel mountains, located at 5,900 feet in elevation. California black oaks are the main oak species in the area. In October 2019, a large dead California black oak was confirmed to be infested with GSOB. Seven infested GSOB trees were found to be infested at varying levels during the initial survey of the area, but many more are suspected to be infested in the local campground and local area. An additional GSOB infested black oak was identified in May 2020. This new infestation is located 43 miles from the infestation in Oak Glen, CA. Currently there are no known GSOB infested trees on the Angeles National Forest, but surveys for the areas are pending.

These are mountain communities that use firewood for heating their homes. Many of the homes in these communities are not the owner's primary residences, utilizing them primarily on weekends and holiday. With an abundance of outdoor recreation opportunities, these communities are popular tourist destinations as well. The risk of moving or bringing into the area GSOB infested firewood unknowingly is extremely high.

Hagador Canyon infestation in Riverside County:

Hagador canyon is a popular hiking trail in the foothills where Corona meets the Santa Ana Mountains located in the Cleveland National Forest. The dominant tree species in the area are coast live oaks (*Quercus agrifolia*), California Sycamore (*Platanus racemosa*) with a few black walnuts (*Juglans californica*), manzanita (*Arctostaphylos sp.*) and toyon (*Heteromeles arbutifolia*). In August 2019, 4 coast live oaks were confirmed to be infested with GSOB with varying levels of infestation including an amplifier tree. This new infestation is located 7 miles from the known infestation in Weir Canyon in Orange County. It is unknown if infested firewood was brought into this area.

Trabuco Canyon in Orange County:

Trabuco Canyon is a small unincorporated community located in the foothills of the Santa Ana Mountains in eastern Orange County, California, and lies next to subdivision housing of nearby cities of Irvine, Lake Forest and Rancho Santa Margarita and is partly within the Cleveland National Forest. In June 2019, 12 coast live oaks trees were confirmed to be infested with GSOB. 2019 was the first year of the infestation in the area and surveys will be conducted each year. This new infestation is located 8.5 miles from the known infestation in Falcon & Blue Jay campgrounds in the Trabuco ranger district.

From the initial discovery of GSOB in San Diego County and continuing through each subsequent new discovery, federal, state and local government agencies, the University of California and non-profit groups have made an intensive, coordinated, multiagency effort to slow the spread and impact of the beetle. By expanding the GSOB Zone of Infestation to include all locations where susceptible oak species occur in San Bernardino, Riverside, Orange and Los Angeles Counties, increased public attention will focus on GSOB and raise the awareness of the surrounding counties and the rest of the state. Being within a ZOI can help justify requests for funding from grants and other resources. In addition, the ZOI provides specific authority to the Department of Forestry and Fire Protection, and agents acting under its authority, to control and limit the spread of the infestation under certain circumstances.

DESCRIPTION OF PROPOSED ZONE

SAN BERNARDINO/RIVERSIDE/ORANGE/LOS ANGELES COUNTIES (APPENDIX A, B, C & D):

Mapping criteria were developed to determine the proposed ZOI Expansion boundary. The mapping criteria to revise ZOI parameters are as follows: 1) location of susceptible host species (*Quercus kelloggii*, *Q. chrysolepis*, *Q. agrifolia*), 3) the public land survey system (section, township and range) and 4) vegetation data sets Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG), Landscape Ecology, Modeling, Mapping & Analysis (LEMMA) and California Department of Fish and Wildlife Biogeographic Information and Observation System (CDFW BIOS).

The latest vegetation data sets from the CALVEG USDA Forest Service – Pacific Southwest Region – Remote Sensing Lab; LEMMA, USDA Forest Service - Pacific Northwest Research Station and the Department of Forest Ecosystems and Society, Oregon State University (OSU); and CDFW BIOS and its Partner Organizations were used to help determine the proposed ZOI Expansion boundary. CalVeg and LEMMA dataset provided the dominant species and vegetation types for the large-scale area, whereas CDFW BIOS datasets provide on the ground botanical field surveys resulting in fine scale highly accurate data for specific areas.

Due to the new infestations in 2019 being outside the established GSOB ZOI and increase in human facilitated movement of GSOB infested wood, the geographic area of the proposed GSOB ZOI will include all known locations of susceptible oak species that occurrence in San Bernardino, Riverside, Orange and Los Angeles Counties. The description of the boundaries for the area are detailed in Tables 1, 2, 3 & 4. The total area for the San Bernardino/Riverside/Orange/Los Angeles Counties ZOI is 4,972,333 acres, with San Bernardino having 975,929 acres, Riverside Counties having 1,563,672 acres, Orange County having 509,740 acres and Los Angeles County having 1,922,992 acres.

Table 1: Boundary Description of ZOI Expansion for GSOB in San Bernardino County.

Boundary Direction	Boundary Description
Western	Lands east of county boundary.
Southern	Lands north of county boundary to Section 36, T.01S. R.04E. SBM.
Eastern	Lands west of Section 20, T.03N. R.02E. SBM, then west of Section 27, T.03N. R.02E. SBM, then west of Section 34, T.03N. R.02E. SBM, then west of Section 03, T.02N. R.02E. SBM, then west of Section 08, T.02N. R.03E. SBM, then west of Section 17, T.02N. R.03E. SBM, then west of Section 20, T.02N. R.03E. SBM, then west of Section 29, T.02N. R.03E. SBM, then west of Section 32, T.02N. R.03E. SBM, then west of Section 05, T.01N. R.03E. SBM, then west of Section 11, T.01N. R.03E. SBM, then west of Section 16, T.01N. R.04E. SBM, then west of Section 22, T.01N. R.04E. SBM, then west of Section 27, T.01N. R.04E. SBM, then west of Section 34, T.01N. R.04E. SBM,

	<p>then west of Section 02, T.01S. R.04E. SBM, then west of Section 11, T.01S. R.04E. SBM, then west of Section 13, T.01S. R.04E. SBM, then west of Section 24, T.01S. R.04E. SBM, then west of Section 25, T.01S. R.04E. SBM, and west of Section 36, T.01S. R.04E. SBM.</p>
<p>Northern</p>	<p>Land south of Section 30, T.04N. R.07W. SBM, then south of Section 29, T.04N. R.07W. SBM, then south of Section 28, T.04N. R.07W. SBM, then south of Section 27, T.04N. R.07W. SBM, then south of Section 26, T.04N. R.07W. SBM, then south of Section 25, T.04N. R.07W. SBM, then south of Section 31, T.04N. R.06W. SBM, then south of Section 32, T.04N. R.06W. SBM, then south of Section 28, T.04N. R.06W. SBM, then south of Section 27, T.04N. R.06W. SBM, then south of Section 26, T.04N. R.06W. SBM, then south of Section 25, T.04N. R.06W. SBM, then south of Section 31, T.04N. R.05W. SBM, then south of Section 32, T.04N. R.05W. SBM, then south of Section 09, T.03N. R.05W. SBM, then south of Section 15, T.03N. R.05W. SBM, then south of Section 23, T.03N. R.05W. SBM, then south of Section 24, T.03N. R.05W. SBM, then south of Section 19, T.03N. R.04W. SBM, then south of Section 20, T.03N. R.04W. SBM, then south of Section 21, T.03N. R.04W. SBM, then south of Section 22, T.03N. R.04W. SBM, then south of Section 01, T.03N. R.04W. SBM, then south of Section 06, T.03N. R.03W. SBM, then south of Section 17, T.03N. R.03W. SBM, then south of Section 16, T.03N. R.03W. SBM, then south of Section 15, T.03N. R.03W. SBM, then south of Section 11, T.03N. R.03W. SBM, then south of Section 13, T.03N. R.03W. SBM, then south of Section 31, T.04N. R.02W. SBM, then south of Section 32, T.04N. R.02W. SBM, then south of Section 33, T.04N. R.02W. SBM, then south of Section 34, T.04N. R.02W. SBM, then south of Section 26, T.04N. R.02W. SBM, then south of Section 12, T.03N. R.02W. SBM, then south of Section 07, T.03N. R.01W. SBM, then south of Section 08, T.03N. R.01W. SBM, then south of Section 04, T.03N. R.01W. SBM, then south of Section 15, T.03N. R.01W. SBM, then south of Section 14, T.03N. R.01W. SBM, then south of Section 13, T.03N. R.01W. SBM,</p>

	then south of Section 18, T.03N. R.01E. SBM, then south of Section 17, T.03N. R.01E. SBM, then south of Section 16, T.03N. R.01E. SBM, then south of Section 10, T.03N. R.01E. SBM, then south of Section 23, T.03N. R.01E. SBM, then south of Section 24, T.03N. R.01E. SBM, then south of Section 19, T.03N. R.02E. SBM, and south of Section 20, T.03N. R.02E. SBM.
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Table 2: Boundary Description of the ZOI Expansion for GSOB in Riverside County.

Boundary Direction	Boundary Description
Western	Lands east of county boundary.
Southern	Lands north of county boundary to Section 33, T.08S. R.05E. SBM, then north of Section 22, T.08S. R.05E. SBM, then north of Section 23, T.08S. R.05E. SBM, then north of Section 24, T.08S. R.05E. SBM, then north of Section 19, T.08S. R.6E. SBM, then north of Section 20, T.08S. R.6E. SBM, then north of Section 21, T.08S. R.6E. SBM, then north of Section 22, T.08S. R.6E. SBM, then north of Section 23, T.08S. R.6E. SBM, then north of Section 24, T.08S. R.6E. SBM, then north of Section 19, T.08S. R.7E. SBM, then north of Section 20, T.08S. R.7E. SBM, then north of Section 21, T.08S. R.7E. SBM, then north of Section 22, T.08S. R.7E. SBM, and north of Section 23, T.08S. R.7E. SBM.
Eastern	Lands west of Section 33, T.08S. R.05E. SBM, then west of Section 28, T.08S. R.05E. SBM, then west of Section 23, T.08S. R.07E. SBM, then west of Section 13, T.08S. R.06E. SBM, then west of Section 12, T.08S. R.06E. SBM, then west of Section 01, T.08S. R.06E. SBM, then west of Section 36, T.07S. R.06E. SBM, then west of Section 25, T.07S. R.06E. SBM, then west of Section 24, T.07S. R.06E. SBM, then west of Section 13, T.07S. R.06E. SBM, then west of Section 12, T.07S. R.06E. SBM, then west of Section 01, T.07S. R.06E. SBM, then west of Section 34, T.06S. R.06E. SBM, then west of Section 29, T.06S. R.06E. SBM, then west of Section 23, T.06S. R.05E. SBM, then west of Section 14, T.06S. R.05E. SBM,

	then west of Section 11, T.06S. R.05E. SBM, then west of Section 02, T.06S. R.05E. SBM, then west of Section 35, T.05S. R.05E. SBM, then west of Section 26, T.05S. R.05E. SBM, then west of Section 23, T.05S. R.05E. SBM, then west of Section 16, T.05S. R.04E. SBM, then west of Section 10, T.05S. R.04E. SBM, then west of Section 03, T.05S. R.04E. SBM, then west of Section 33, T.04S. R.04E. SBM, then west of Section 28, T.04S. R.04E. SBM, then west of Section 22, T.04S. R.04E. SBM, then west of Section 17, T.04S. R.04E. SBM, then west of Section 08, T.04S. R.04E. SBM, then west of Section 01, T.04S. R.03E. SBM, then west of Section 36, T.03S. R.03E. SBM, then west of Section 26, T.03S. R.03E. SBM, then west of Section 23, T.03S. R.03E. SBM, then west of Section 14, T.03S. R.03E. SBM, then west of Section 11, T.03S. R.03E. SBM, then west of Section 02, T.03S. R.03E. SBM, then west of Section 35, T.02S. R.03E. SBM, then west of Section 27, T.02S. R.03E. SBM, then west of Section 22, T.02S. R.03E. SBM, then west of Section 15, T.02S. R.03E. SBM, then west of Section 12, T.02S. R.03E. SBM, and west of Section 01, T.02S. R.03E. SBM.
Northern	Lands south of county boundary to Section 01, T.02S. R.03E. SBM.

Table 3: Boundary Description of the ZOI Expansion for GSOB in Los Angeles County.

Boundary Direction	Boundary Description
Western	Lands east of county boundary.
Southern	Lands north of county boundary.
Eastern	Lands west of county boundary to Section 30, T.04N. R.07W. SBM.
Northern	Lands south of Section 04, T.08N. R.19W. SBM, then south of Section 03, T.08N. R.19W. SBM, then south of Section 11, T.08N. R.19W. SBM, then south of Section 12, T.08N. R.19W. SBM, then south of Section 07, T.08N. R.18W. SBM, then south of Section 08, T.08N. R.18W. SBM, then south of Section 09, T.08N. R.18W. SBM, then south of Section 10, T.08N. R.18W. SBM, then south of Section 14, T.08N. R.18W. SBM,

then south of Section 24, T.08N. R.18W. SBM,
then south of Section 19, T.08N. R.17W. SBM,
then south of Section 29, T.08N. R.17W. SBM,
then south of Section 28, T.08N. R.17W. SBM,
then south of Section 27, T.08N. R.17W. SBM,
then south of Section 35, T.08N. R.17W. SBM,
then south of Section 25, T.08N. R.17W. SBM,
then south of Section 30, T.08N. R.16W. SBM,
then south of Section 29, T.08N. R.16W. SBM,
then south of Section 28, T.08N. R.16W. SBM,
then south of Section 27, T.08N. R.16W. SBM,
then south of Section 26, T.08N. R.16W. SBM,
then south of Section 36, T.08N. R.16W. SBM,
then south of Section 31, T.08N. R.15W. SBM,
then south of Section 05, T.07N. R.15W. SBM,
then south of Section 04, T.07N. R.15W. SBM,
then south of Section 03, T.07N. R.15W. SBM,
then south of Section 11, T.07N. R.15W. SBM,
then south of Section 13, T.07N. R.15W. SBM,
then south of Section 18, T.07N. R.14W. SBM,
then south of Section 20, T.07N. R.14W. SBM,
then south of Section 21, T.07N. R.14W. SBM,
then south of Section 27, T.07N. R.14W. SBM,
then south of Section 26, T.07N. R.14W. SBM,
then south of Section 25, T.07N. R.14W. SBM,
then south of Section 06, T.06N. R.13W. SBM,
then south of Section 05, T.06N. R.13W. SBM,
then south of Section 09, T.06N. R.13W. SBM,
then south of Section 10, T.06N. R.13W. SBM,
then south of Section 14, T.06N. R.13W. SBM,
then south of Section 13, T.06N. R.13W. SBM,
then south of Section 19, T.06N. R.12W. SBM,
then south of Section 29, T.06N. R.12W. SBM,
then south of Section 05, T.05N. R.12W. SBM,
then south of Section 04, T.05N. R.12W. SBM,
then south of Section 27, T.05N. R.12W. SBM,
then south of Section 26, T.05N. R.12W. SBM,
then south of Section 13, T.05N. R.12W. SBM,
then south of Section 19, T.05N. R.11W. SBM,
then south of Section 20, T.05N. R.11W. SBM,
then south of Section 16, T.05N. R.11W. SBM,
then south of Section 22, T.05N. R.11W. SBM,
then south of Section 23, T.05N. R.11W. SBM,
then south of Section 36, T.05N. R.11W. SBM,
then south of Section 06, T.04N. R.10W. SBM,
then south of Section 08, T.04N. R.10W. SBM,
then south of Section 09, T.04N. R.10W. SBM,

	then south of Section 15, T.04N. R.10W. SBM, then south of Section 02, T.04N. R.10W. SBM, then south of Section 01 T.04N. R.10W. SBM, then south of Section 06, T.04N. R.09W. SBM, then south of Section 05, T.04N. R.09W. SBM, then south of Section 16, T.04N. R.09W. SBM, then south of Section 15, T.04N. R.09W. SBM, then south of Section 14, T.04N. R.09W. SBM, then south of Section 13, T.04N. R.09W. SBM, then south of Section 18, T.04N. R.08W. SBM, then south of Section 29, T.04N. R.08W. SBM, then south of Section 21, T.04N. R.08W. SBM, then south of Section 22, T.04N. R.08W. SBM, then south of Section 23, T.04N. R.08W. SBM, then south of Section 25, T.04N. R.08W. SBM, and south of Section 30, T.04N. R.07W. SBM.
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Table 4: Boundary Description of ZOI Expansion for GSOB in Orange County.

Boundary Direction	Boundary Description
Western	Lands east of county border
Southern	Lands north of county border
Eastern	Lands west of county border
Northern	Lands south of county border

TREE SPECIES DISTRIBUTION

In California, GSOB attacks have been identified in the field on two primary species, coast live oak, *Quercus agrifolia*, California black oaks, *Quercus kelloggii*, and one lesser species, canyon live oak, *Quercus chrysolepis*. In California, the range of coast live oak extends north from San Diego County along the Peninsular (Santa Anita Mountains) and Transverse Ranges (San Gabriel Mountains and San Bernardino Mountains) and north along the Coastal Mountain Ranges (San Lucia Mountain Range). California black oak can be found in the mountain ranges of California from the Peninsular Range (Mount Laguna and Palomar Mountain) in the south, north along the San Jacinto Range, along the Traverse Mountain Ranges, the Coastal Mountain Ranges, and in the Sierra Nevada and Cascade Mountain Ranges into Oregon. Between the three species of oaks susceptible to attack from GSOB, they cover most of the oak forested landscapes of California from sea level to elevations of 6,000 feet and above.

DAMAGE TO AFFECTED STANDS AND TREES

Damage caused by the goldspotted oak borer infestation include decline in growth, decreased tree vigor, and high rates of mature oak tree mortality, resulting in a decline/loss of oaks within mixed conifer stands, oak woodlands and urban forests. In this proposed San Bernardino/Riverside/Orange/Los Angeles Counties ZOI, the new GSOB infestations have infested and killed only a few California black oaks so far, but in established areas of infestation of this insect in the counties it has killed thousands of trees. For example, in Green Valley alone, which is located in Los Angeles County, GSOB infested 2,700 coast live oak trees resulting in almost 500

trees already having been removed and over 650 trees still marked for removal. LA County Fire Forestry Division has created an online public viewer web map showing the up to date information on the number of trees inspected, trees infested with GSOB, trees marked for removal, which trees are GSOB amplifier trees, etc. It is a great resource for this important information.

<http://lacounty.maps.arcgis.com/apps/opsdashboard/index.html#/c8b5762089874127819eaabc8eb25218>

The proposed ZOI area contains the entire distribution of susceptible coast live oak, canyon live oak and black oak stands that have a potential of being infested in the four counties.

TERRAIN AND COVER IN RESPECT TO CONTROL

The terrain within the areas of infestation varies greatly in slope, elevation, aspect and cover. Slopes range from flat to steep and include all aspects, but the area where the mortality has occurred has been on flat to gentle slopes. The dominant species of oaks in the area are California black oak, coast live oak, and canyon live oak. In most cases, access and terrain should not hamper treatments but a tree's proximity to structures, powerlines, roads and other improvements can greatly increase the cost of management.

PROPOSED CONTROL METHODS

The proposed control methods were framed as objectives in the original ZOI request and serve as a guide in San Bernardino/Riverside/Orange/Los Angeles Counties to minimize the spread of GSOB. We plan to utilize all previously recognized methods from the original San Diego ZOI request. GSOB ZOI expansion objectives are described as follows: (2012 San Diego ZOI)

- 1) Protect forest, woodlands and communities from the oak tree killing pest known as goldspotted oak borer (GSOB), *Agrilus auroguttatus*.
- 2) Contain GSOB pest within the ZOI expansion boundary in Los Angeles, Orange, Riverside and San Bernardino Counties and within the already established San Diego GSOB ZOI.
 - a. Limit the spread and severity of GSOB infestations within the ZOI by implementing Integrated Pest Management (IPM), providing educational outreach and utilizing CAL FIRE resources where appropriate, including resource management personnel, conservation camp crews, other personnel and/or equipment.
 - i. Minimize the fiscal hardship caused by GSOB attacks on private and publicly-owned lands.
 - ii. Protect natural and cultural resources threatened by GSOB attack.
 - b. Direct Timber Harvesting Plans that harvest GSOB susceptible oak species within the ZOI to comply with the Forest Practice Rules (14 CCR 957.9 Prevention Practices) and utilize feasible measures guided by IPM.
 - c. Prepare for and coordinate a rapid response should GSOB spread outside the ZOI expansion, including conducting an assessment and implementing mitigation measures with partner agencies, in order to contain the spread and limit the severity of the new GSOB population.
 - i. Network with the appropriate agencies and groups of counties and communities at risk and encourage them to develop GSOB preparedness plans.
 - ii. Evaluate the need to change the ZOI boundary for any new infestation occurring outside the current boundary.
- 3) Improve knowledge and understanding of the GSOB pest by supporting and guiding studies and research efforts in order to develop effective Integrated Pest Management and Best Management Practices for GSOB.

- 4) Minimize public hazards created by GSOB-killed trees and resulting fuel build-up through coordinated abatement.
- 5) Foster oak wood product utilization that minimizes the chance of spreading GSOB.
- 6) Seek funding, whenever grant or other funds become available, to assist with activities associated with containing the spread of the GSOB pest and mitigating its impact in infested areas.
- 7) Keep local/state/federal elected representatives, other state agencies, local/federal agencies, interest groups and the public apprised of the status and threat posed by GSOB and updated on containment and management efforts.

Partnering for Effective Education Awareness

Local, state and federal agencies, the University of California, and non-profit organizations have partnered together to help educate the public on the recognition of GSOB. Together they have participated in, producing handouts and flyers, preparing news articles and public service announcements about GSOB, and ensuring a consistent and uniform message about the pest as well as effective management practices. Town hall meetings, workshops and other public meeting engagements have been developed and delivered with the same consistent and uniform message. The USDA Forest Service, Forest Health Protection, Pacific Southwest Region along with CAL FIRE will create a report detailing the extent of the infestation with management options for San Bernardino/ Riverside/Orange/Los Angeles Counties.

Infested Hazard Tree/Amplifying Tree Removal

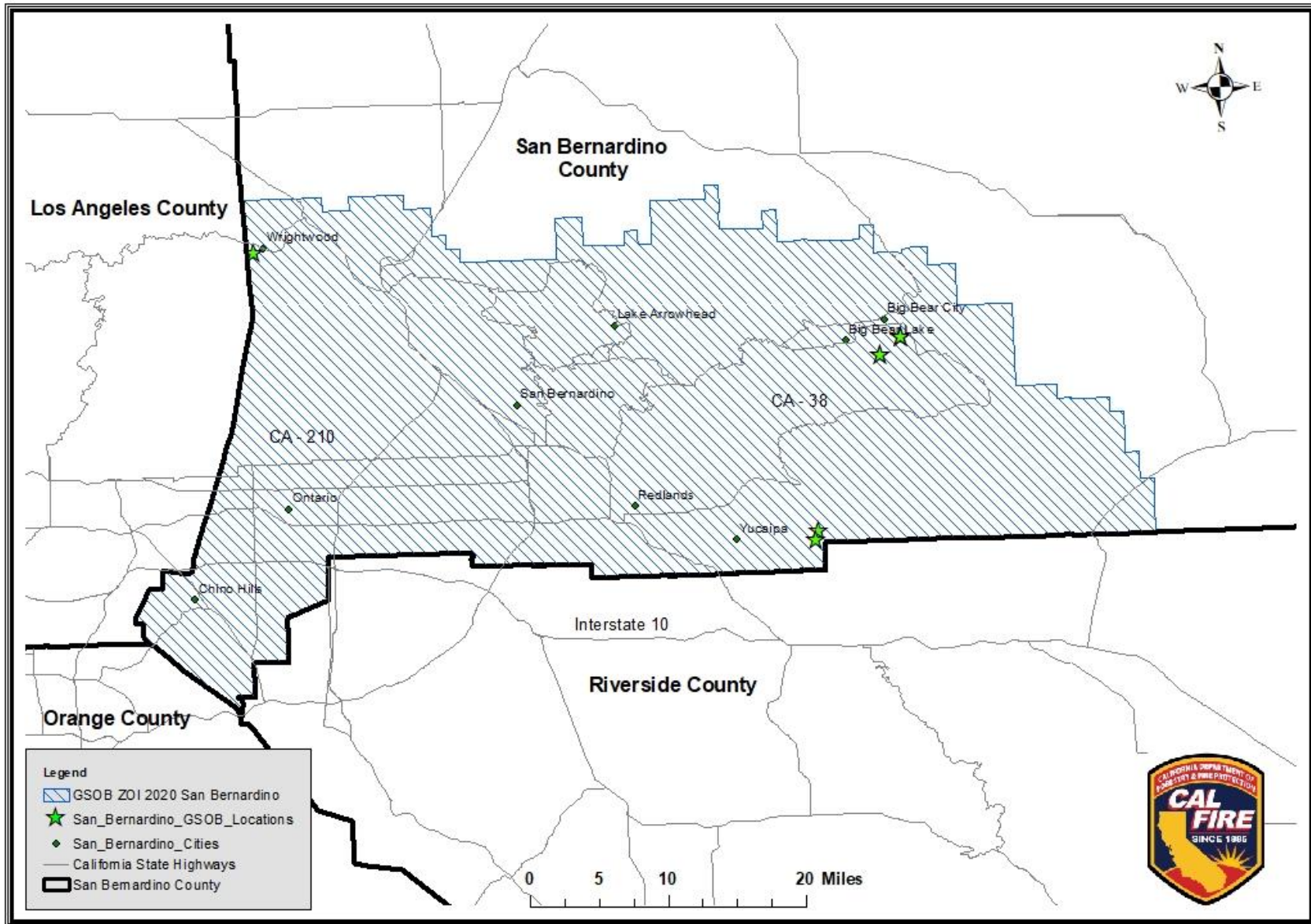
GSOB-infested oaks on private and federal lands are being removed to abate life and property hazards as well as removing amplifying trees. Because GSOB can live in infested wood for up to a year until after the tree dies, it is critical to dispose of the material in a way which will prevent further GSOB spread. Tree removal and subsequent “safe” disposal of infested wood is currently being funded by a variety of funding mechanisms including grants from the US Forest Service, CAL FIRE and other sources, Unit VMP funding, and county funding.

Surveyed trees that are found to have a threshold number of GSOB exit holes and significant crown dieback or thinning (i.e. heavily-infested amplifier trees) will be felled with the stump being cut flush to the ground. The felled infested trees will be limbed and bucked into manageable lengths. Because GSOB are bark dependent, there is an option to debark the logs, leaving the logs available for firewood or other purposes. The bark can be chipped to kill the GSOB along with tree for utilization or disposal. If the bark is left on the logs, the entire log must be treated in some fashion. Other effective disposal or treatment may be employed.

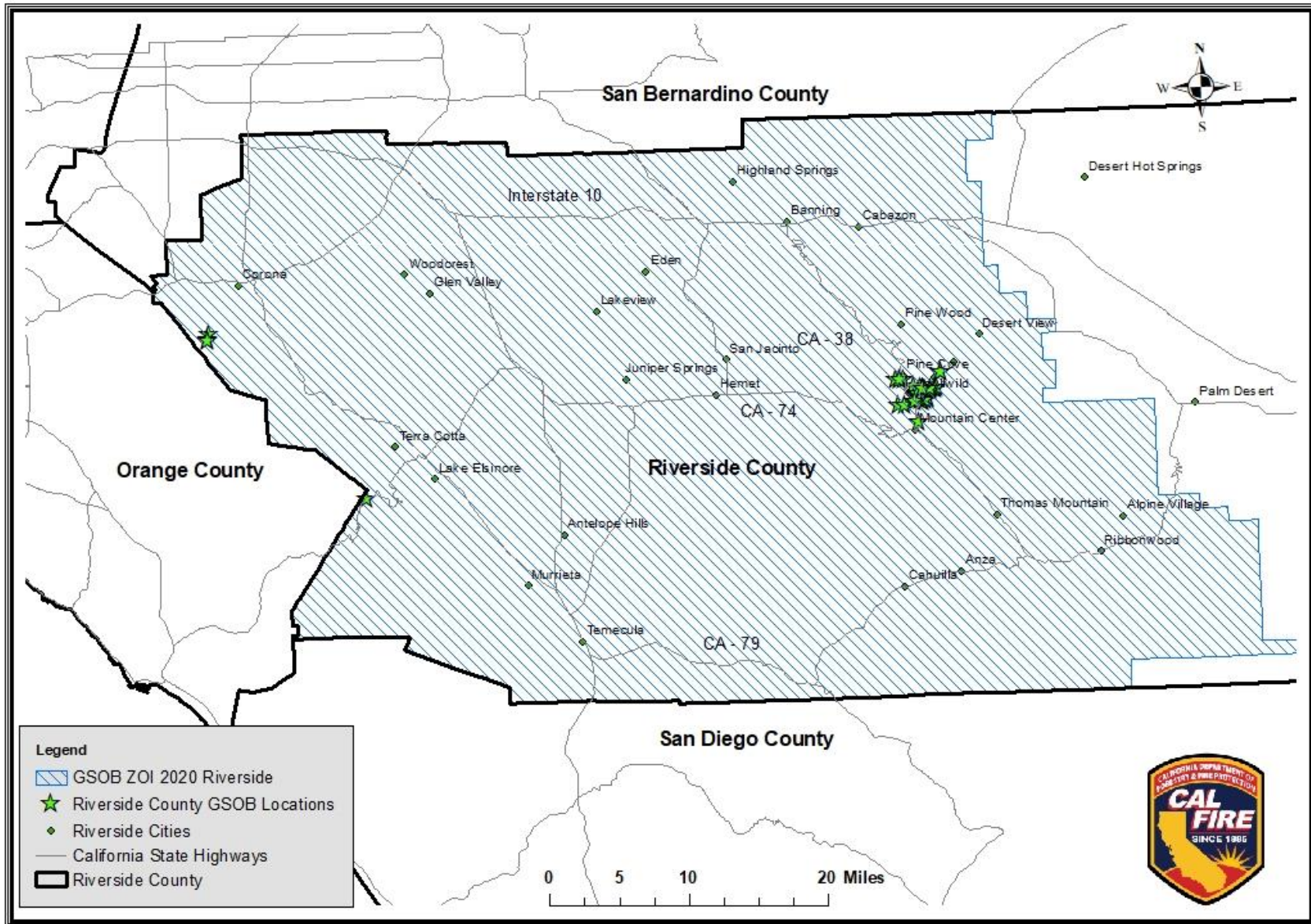
Individual Tree protection - Systemic and Contact Insecticides

Topical insecticide application on the boles and large branches to protect selected high value trees from GSOB attack can be effective if the tree has not yet been attacked or is lightly infested and has the capability of recovery from GSOB attack. Systemic pesticides may also be effective against GSOB when applied properly. Use and application of pesticides requires an appropriately state-licensed and county-registered Pest Control Applicator or Qualified Applicator. Control of the pest through insecticides is not practical on a broad scale but it can be appropriate for the protection of select high-value trees.

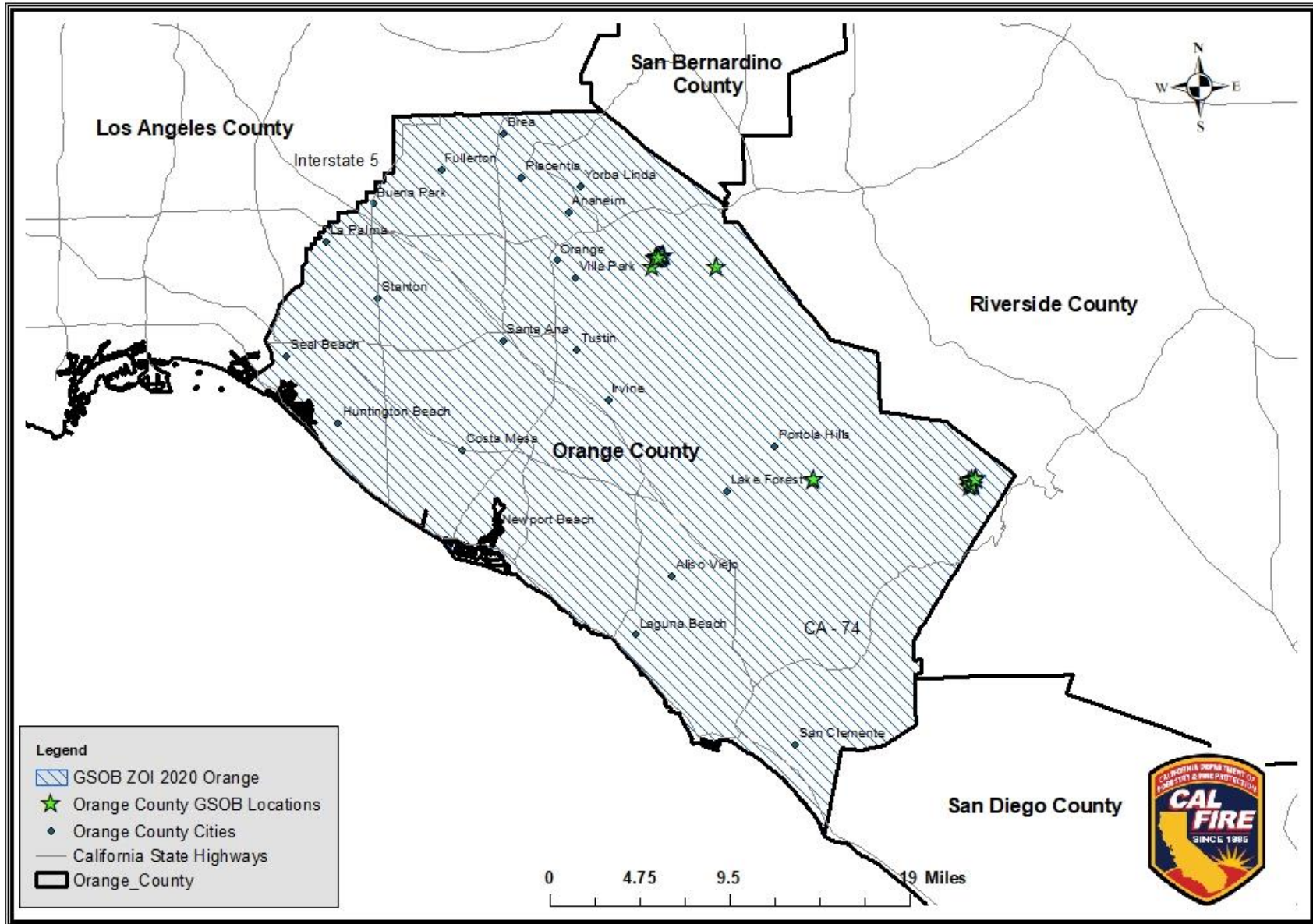
Appendix A: Proposed Goldspotted Oak Borer Zones of Infestation for San Bernardino County



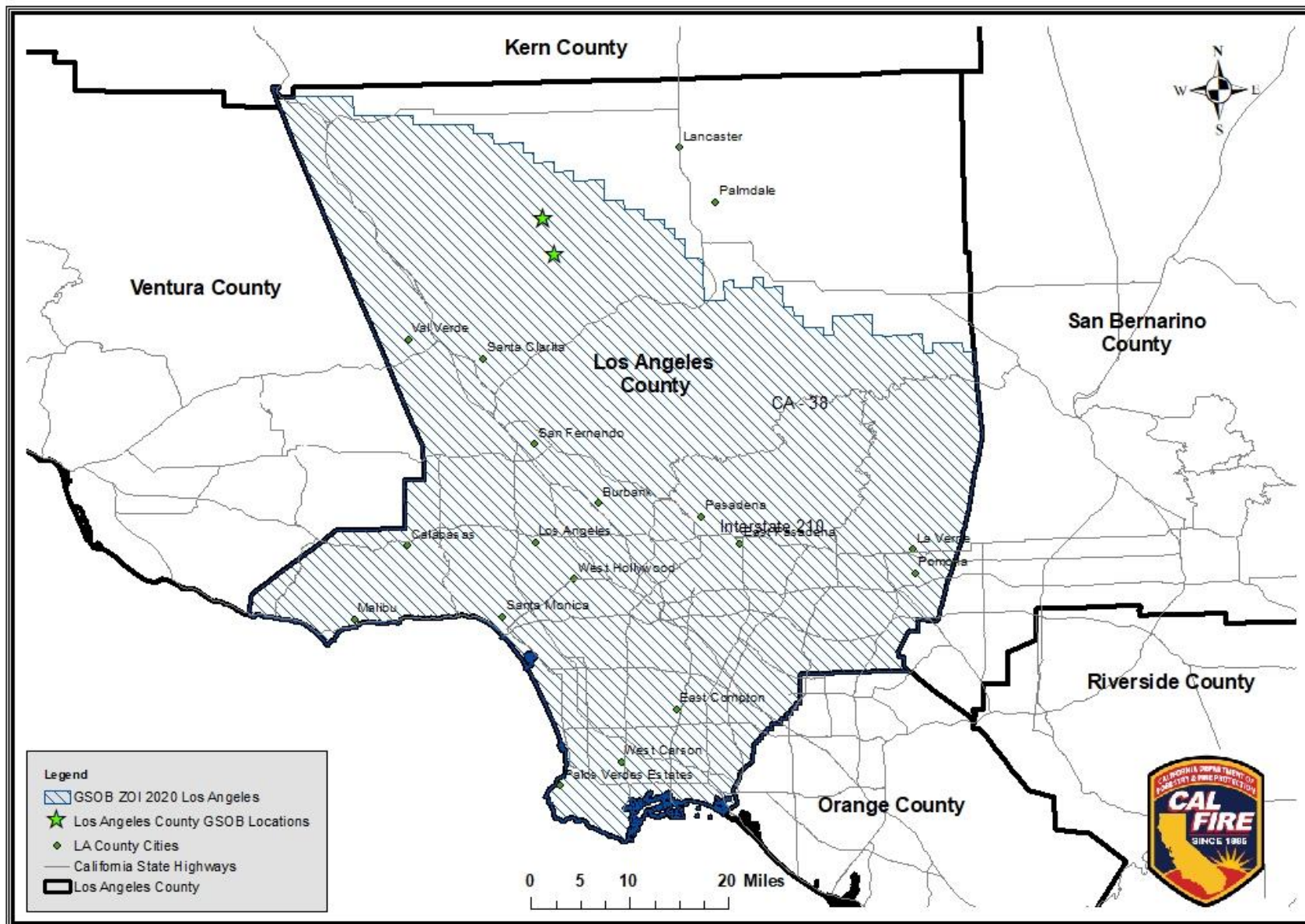
Appendix B: Proposed Goldspotted Oak Borer Zone of Infestation for Riverside County



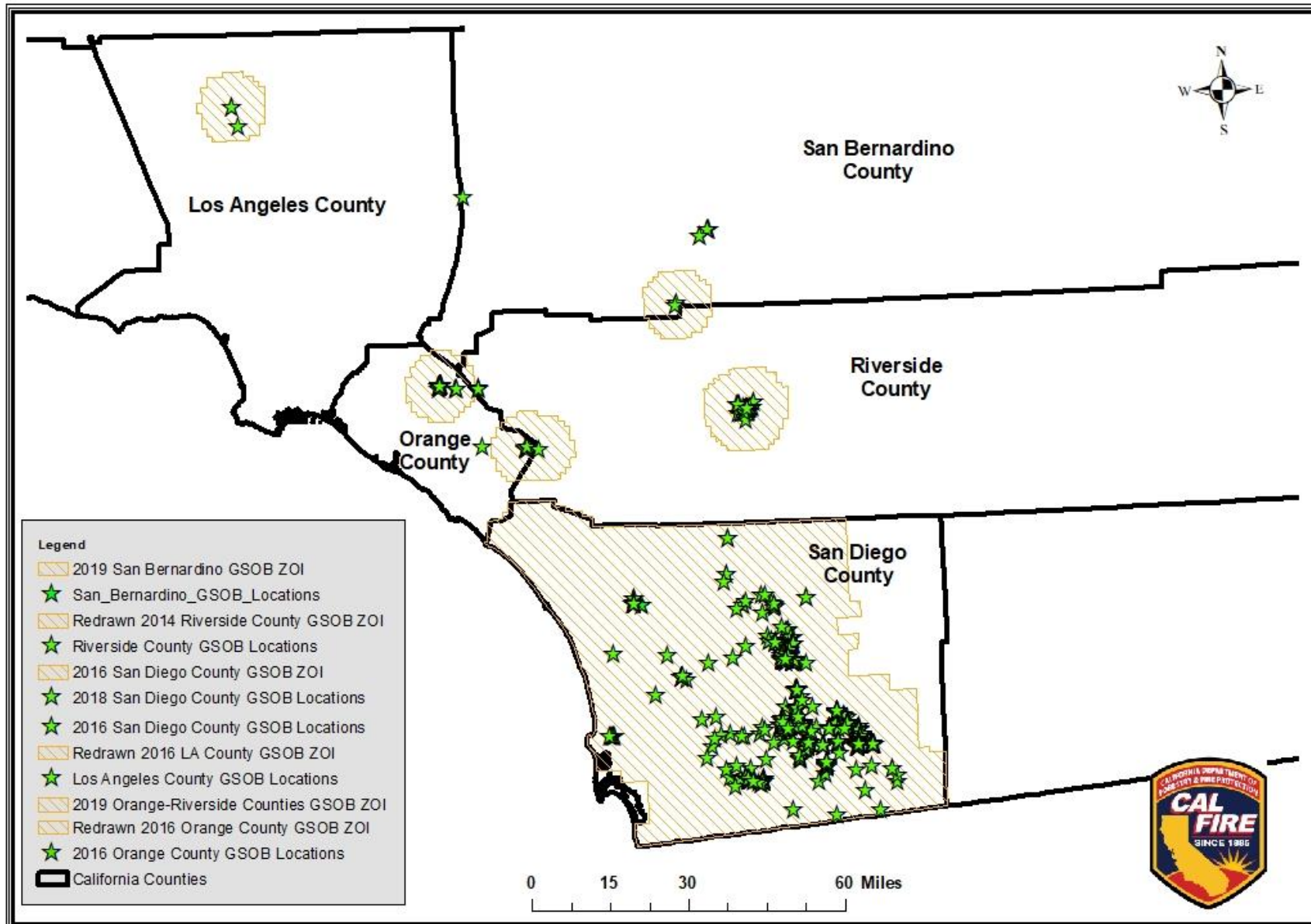
Appendix C: Proposed Goldspotted Oak Borer Zone of Infestation for Orange County



Appendix D: Proposed Goldspotted Oak Borer Zones of Infestation for Los Angeles County



Appendix E: Existing Goldspotted Oak Borer Zones of Infestations



Appendix F: Existing and Proposed Goldspotted Oak Borer Zones of Infestations

