

# **Goldspotted Oak Borer (GSOB)**

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## **Community Stewards Resource Toolkit**

**February 2025**



**LA County Chief Sustainability Office**  
Environment • Economy • Equity

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## Background and Introduction

Trees are an important part of our communities and are critical infrastructure, as reflected by the Los Angeles County Board of Supervisors' adoption of the County's first ever [Community Forest Management Plan](#) (CFMP) in October 2024. The CFMP is a comprehensive strategy to enhance, expand, and sustain the county's community forest, advancing tree equity and ensuring that everyone can enjoy the benefits of trees. It also helps the County to effectively respond to emerging threats to the community forest, such as climate change impacts and invasive pests, by setting forth consistent management approaches based on current science and identifying policy and program needs to support these approaches.

The County is committed to preserving and protecting its oak trees, which are vital to the region's biodiversity, environmental health, and cultural heritage. The Goldspotted Oak Borer (GSOB) is an invasive species that is infesting and killing many oak trees in Southern California. Recognizing the significant threat posed by the GSOB, the CSO, in coordination and collaboration with various County departments, initiated a robust education and outreach initiative aimed at limiting the spread of this invasive pest and protecting oak trees. Public education is critical to this effort, as early detection and proper management practices can make a significant difference in preventing GSOB infestations from devastating LA County's oak populations.

To engage and inform communities, LA County held public workshops in the Santa Clarita Valley, San Fernando Valley, and Santa Monica Mountains, where residents, landowners, and other local stakeholders learned to identify GSOB infestations, report sightings, and implement best practices to protect oak trees. We also shared information at community events, including farmer's markets, and used these opportunities to rehearse and refine some of the key messages about GSOB and protecting oak trees that are shared in this toolkit. We have carefully compiled a set of resource materials, including palm cards, identification guides, management tips, and instructions for reporting suspected infestations.

To introduce and refine these messages and materials, the County held a Community Stewards Training Workshop with community leaders, educators, volunteers and advocates to share the knowledge and tools they need to train and inform others within their networks and communities about GSOB. We facilitated activities to let participants workshop the messages and resource materials, and asked for feedback and recommendations on how to refine the information, tools and resources are shared as part of this toolkit.

This toolkit has been updated based upon what we heard at the Community Stewards Training and at other workshops and outreach activities. It will help you and those in your network extend the reach of community knowledge and understanding about the potential impacts of GSOB on our oak trees and what we can do to limit the spread. We hope this will give you the tools you need to be a resource to others in your community and help foster a countywide commitment to protecting oak trees.

## **Purpose of this Toolkit**

Your role as a community leader, educator, steward, or advocate is key to managing the spread of the GSOB and preserving our healthy oak trees. We have to be on the lookout and take action to limit GSOB's spread through our communities and oak woodlands. We need your help sharing key information about GSOB with your community, including how to identify the signs of an oak tree that may have a GSOB infestation, understanding how GSOB moves, and what we can do to limit and prevent GSOB from infesting our trees.

This toolkit was developed as a resource that you can use when conducting outreach, sharing information, and having conversations about GSOB with your community. Feel free to use the suggested content, messages, and resources to help share information related to the topics covered in this toolkit:

- **Oak trees are important in our communities.** Oak trees have lived in California for centuries. Their canopies and acorns continue to shelter and nourish Native Peoples and wildlife, and they provide beauty, shade, and fresh air for all today.
- **GSOB can harm our oak trees.** GSOB is a very small beetle that lays its eggs in oak trees, and its larvae thrives on eating the living tissue of certain oak trees, which slowly kills the tree.
- **How GSOB spreads.** Adult GSOB beetles can fly short distances, but most of their spread is linked to the movement of firewood infested with GSOB larvae.
- **Managing GSOB.** We can manage the spread of GSOB by checking on our oak trees, and documenting and reporting any suspected infestation.

This toolkit is a resource for you to educate members of your community about oak trees, GSOB and how you and your community can act to help limit the movement of GSOB. For more information and to connect with other advocates in your community, see the links in the resources section at the end.

## Key Information on Oak Trees and GSOB

The toolkit is designed to provide a foundation of information so you can confidently communicate with your audience. For instance, a docent or a scout group leader may use the information in the toolkit and incorporate it on a hike, nature walk, or presentation that regularly takes place.

This section provides a few high-level points that serve as an introduction to oak trees, GSOB and how it harms our oak trees, and methods for managing the spread. Feel free to tailor the information below or the presentation included at the end of the Toolkit to provide a foundation for your audience.

- Oak Trees
  - Keystone species, meaning other organisms depend on them. Without oak trees the environment would dramatically change.
  - Culturally significant for local tribes
  - Produce acorns which are a valuable source for food
- What is GSOB?
  - Invasive beetle native to Arizona and Northern Mexico
  - GSOB only attacks oak trees
    - These three species are most susceptible: California Black Oak, Canyon Live Oak, and Coast Live Oak. Some Engelmann Oaks have also been impacted.
  - Lays its eggs on the bark, larvae bore into the tree eating the live issue which slowly kills the tree
  - Adult GSOB beetles emerge from the bark leaving behind a D-shaped hole due to their flat back and round belly.
- How is GSOB harming oak trees?
  - GSOB eats the living tissue inside California Black Oak, Canyon Live Oak, and Coast Live Oak.
  - Oak trees impacted by GSOB will show staining on the trunk or main branches, crown thinning and twig die-back, and D-shaped holes on the bark.
- What are we doing to manage the spread?
  - GSOB adults can fly short distances, however most spread has been linked to the movement of infested firewood.
  - Surveying, early detection, preventing the movement of firewood, planting new trees, and treatment are some tactics to manage the spread.
  - Younger oak trees are typically smaller in diameter and therefore have less live tissue making them less susceptible to GSOB
  - LA County inspectors are visiting trees with potential infestations
    - Infestations can be reported through [gsob.org](https://www.gsob.org)

## Public Messaging

This toolkit includes several key messages to share with community members, organized by topic. In addition to these key messages, reference materials and relevant LA County contact information are provided.

- **Oak trees are important in our communities**

Oak trees are a keystone species in LA County. This means oaks have an important role in supporting our local ecosystem and many of the animals, insects and plants that live here. Oak trees have cultural and ecological significance, and there are many kinds of oak trees that are native to our area. Oak trees are in our neighborhoods as well as in our parks and open spaces. Oak trees are protected in LA County.

- **GSOB can harm our oak trees**

GSOB is an invasive beetle that mostly kills Coast live oak, California black oak, and Canyon live oak. Be on the lookout for the signs and symptoms of an infestation. Look for D-shaped holes in the bark, staining on the trunk of trees, and canopy dieback.

- **We can all help to slow the spread of GSOB**

GSOB naturally spreads very slowly, but with the help of people it can spread very quickly. You can help slow the spread by not moving firewood and buying it where you plan to burn it. Leave behind unused firewood. Plant oak tree saplings and protect young oaks. Young oak trees are less susceptible to GSOB.

- **Early detection is key to managing GSOB**

Early detection is key to limiting the spread of GSOB. Look for crown thinning and dieback, bark staining, and D-shaped holes. If you see something you suspect to be GSOB, document and report it on [GSOB.org](http://GSOB.org)! Take photos and note your location. Call LA County Fire at (818) 890-5719. Check on your trees regularly and join activities to support oaks that happen all year long.

We would like you to use these messages when educating and conducting outreach activities to ensure you emphasize the four topics while maintaining consistency.

## Sample Script

You can use the sample script below to practice a conversation that may take place between a steward and community member.

*Steward: Hi there, do you like oak trees?*

*Community member: Oh yes, I love oak trees, but I don't have any on my property.*

*Steward: That's alright, I'm just letting folks know about the Goldspotted Oak Borer or GSOB – have you heard of it?*

*Community member: No, I haven't, what is that?*

*Steward: GSOB is a beetle that's killing our oak trees. We're asking folks like you to keep an eye on our oak trees – look out for any D-shaped holes, thinning canopies, and staining on the trunk or branches of oak trees. We also want to remind you if you're camping or buying firewood, to buy it where you plan to burn it. If the firewood is infested, you could be moving GSOB and other pests. Here's a flyer where you can learn more about it (share brochure).*

*Community member: That's horrible! Is there anything else I can do?*

*Steward: Yes. Early detection is key to help slow the spread of GSOB. If you think you found an oak tree that's infested with GSOB please document and report it on the GSOB.org website and the LA County Fire Department. Taking pictures and noting the location will be helpful so the proper agency can go out and examine the tree.*

*Community member: Thank you for the information, this has been very insightful. I'll be sure to tell my friends and family.*

Not all interactions will be like the example provided, so feel free to adapt what you say based on the environment and the encounter. You will want to make sure you include all four topics so our messaging remains consistent, and community members have a clear understanding of what we are asking of them. Resources in the Toolkit are available for you to use, and there are links to additional resources for each topic. Please note some material is more technical and may not be best suited for outreach to the public.

Here are some questions to consider as you hold conversations with your community.

- Who is your audience?
- What level of information do you need to provide?
- How can you make this topic/content relatable?

## Visual Resources

The Project Team tested out messages and many resources available for the community to learn more. From our early outreach activities, we recommend using the three visuals listed below and included on the following pages. PDF and JPG versions of the key resources are available at the end of the document for you to print. Alternatively, you can visit the link attached to the title to download the document.

Printing these as posters serves as a useful attraction to people passing by pop-up events who may be curious to learn more. The GSOB Palm Card is a great item to hand out and approach people with to start a conversation about GSOB.

### Visual 1: [A New Threat to Oaks](#)

This includes a high-level overview of the origins of GSOB, what species of oak trees are most susceptible, reminds people not to move firewood, provides a visual of GSOB, and shows the signs or symptoms of an oak tree declining due to GSOB.

- In our experience, the bright colors of this visual drew people to the poster. Note that the large images of GSOB led some to believe the insect was much larger than it actually is (close in size to a grain of rice).

### Visual 2: [Buy It Where You Burn It](#)

This flyer conveys the importance of following best practices with firewood to limit the spread of GSOB and other invasive pests like the spongy moth, spotted lanternfly, Asian longhorned beetle, and emerald ash borer.

- Using this graphic for our activities captured people's attention and got them to ask about firewood. This graphic is helpful as an entry point to talk about how invasive pests commonly spread through the movement of firewood.

Additional materials are available through this [Resource Library](#).

### Visual 3: GSOB Palm card

This broadly highlights the four topics and serves as a quick reference to reporting: action oriented.

- Some people were uninterested in taking flyers but were willing to take the palm card since it was smaller. The design is approachable which allows us to convey the content and share this resource.

If you need the Palm Card in other formats (PDF or JPEG), please contact LA County CSO at [sustainability@cs0.lacounty.gov](mailto:sustainability@cs0.lacounty.gov).

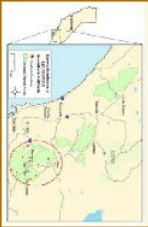


# A New Threat to Oaks

## GOLDSPOTTED OAK BORER: A New Threat to Oaks in California

The goldspotted oak borer (GSOB), *Agrilus coxalis*, is a non-native insect that is killing several species of oaks. The new woodborer was first linked with oak mortality in southern California in May of 2008. Since 2002, this exotic insect has killed an estimated 17,000 oaks on public and private lands in a small area of the state.

### IMPACTS



Established area of infestation in San Diego Co.



GSOB is native to Mexico, Guatemala, and southeastern Arizona.



Coast live oak



California black oak



Canyon live oak

The woodborer is known to attack these oak species.



Coast live oak showing injury from GSOB.



Please do not move oak firewood. It may introduce the borer into additional areas.

### IDENTIFICATION



Adults have six distinguishing orange spots on their forewings.



Adults are 1 cm long and bullet-shaped. Adults are rarely seen.



Mature larvae are 2 cm long, white and eggless. Repeated larvae feeding injuries can kill trees.



Larvae can be recognized by the pinhead-like spiracles located at the tip of the abdomen.

For additional information please visit [www.fs.fed.us/foresthealth/management/info](http://www.fs.fed.us/foresthealth/management/info) or <http://www.cnr.ca/forestry/eng/management/inf>



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### SYMPTOMS



Striped exit holes of the adult. Exit holes are 4 mm in width.



Woodpeckers feeding or larvae under the bark.



Dark-colored stains can represent feeding from the new oak borer.



Crown thinning and branch die-back are also be a sign of attack from the woodborer.



Larval galleries of the goldspotted oak borer on the surface of the wood.



Larvae and pupae are often found in the outer bark.

## FIREWOOD ALERT!

You have the power to protect forests and trees!

# BUY IT WHERE YOU BURN IT.

Invasive pests like the emerald ash borer can hitchhike in your firewood. You can prevent the spread of these damaging insects and diseases by following these firewood tips:

- ▶ Buy locally harvested firewood at or near your destination.
- ▶ Buy certified heat-treated firewood, if available.
- ▶ Gather firewood on site where permitted.

### What might be in your firewood?

**SPONGY MOTH** is a devastating pest of oaks and other trees. Moths lay tan patches of eggs on firewood, campers, vehicles, patio furniture — anything outside! When these items are moved to new areas, this pest gets a free ride.

**SPOTTED LANTERNFLY** sucks sap from dozens of tree and plant species. This pest loves tree-of-heaven but will feed on black walnut, white oak, sycamore, and grape. Like the spongy moth, this pest lays clusters of eggs on just about any dry surface, from landscaping stone to firewood!



**ASIAN LONGHORNED BEETLE** will tunnel through, and destroy, over 20 species of trees — especially maple trees. The larvae of this beetle bore into tree branches and trunks, making it an easy pest to accidentally transport in firewood.

**EMERALD ASH BORER** — the infamous killer of ash trees — is found in forests and city trees across much of the eastern and central United States. This insect is notoriously good at hitching rides in infested firewood, which is how most new infestations start — like the patch of trees now infested near Portland, Oregon. Don't give this tree-killing bug a ride to a new forest, or a new state.

**DONTMOVE  
FIREWOOD.org**

This graphic is for illustrative purposes only. Many of these pests will only infest certain types of trees, making it very unlikely for a single log to contain all species as shown.

Visit [dontmovefirewood.org](http://dontmovefirewood.org) for more information.

## GSOB Palm Card

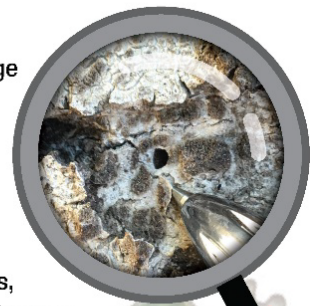
# UH-OH! BEETLE-MANIA IS SWEEPING LA COUNTY!

Oak trees have lived in California for centuries. Their canopies and acorns continue to shelter and nourish Native Peoples, and they provide beauty, shade, and fresh air for all today.

But there's a new threat to our majestic oaks in LA County—the **Goldspotted Oak Borer (GSOB)**. The GSOB beetle is a threat to native oaks, including the Coast Live Oak, California Black Oak, and Canyon Live Oak.



GSOB beetles cause damage throughout their life cycle. They lay eggs in the crevices of oak bark and the larvae burrow into the tree, where they eat the tree's inner layers. As adults, GSOB beetles bore out of the tree, leaving D-shaped exit holes on the trunk.



## THE GOLDSPOTTED OAK BORER

SIX GOLDEN  
SPOTS ON  
FOREWINGS

1/2"  
LONG

### Evidence of attack:

1. Thinning upper branches and leaves of an oak tree
2. Dark red bark stain ("bleeding") on the tree trunk
3. D-shaped exit holes

### What you can do:

1. **Don't move firewood!**  
GSOB beetles spread when infested oak firewood is moved from place to place.
2. **If you suspect GSOB beetles, report it!** Scan the QR code at right.



## Physical Materials for In-Person Outreach

When you are holding an in-person event or conducting other in-person outreach, it may help to compile physical materials for people to see and touch. You may want to show community members what the D-shaped hole in the bark looks like or just how small GSOB beetles are in size. Some materials may not be as easy to obtain as others and may require timely coordination with the respective LA County departments. Here are some steps you can take to secure and use physical materials:

1. Contact the LA County Fire Department nurseries for free oak trees that you can give away at your event. They can be reached at:
  - Malibu nursery: (818) 222-1108
  - San Dimas nursery: (909) 599-4615
2. Contact the LA County Fire Department Invasive Pest Management Unit (IPMU) and the LA County Agricultural Commission/Weights and Measures (ACWM) to see if they are able to join your event or loan you samples of GSOB and bark with evidence of GSOB. They can be reached at:
  - LA County Fire IPMU: (818) 890-5719
  - LA County ACWM: (213) 377-7872
3. Get a magnifying glass so people can get close and examine your displays.

Other suggestions or considerations:

- Include youth/child friendly activities such as coloring pages. Examples of “Don’t Move Firewood” coloring sheets are available [here](#).
- Make sure materials are approachable, less technical or text heavy. When available, share materials that are use clear and visually appealing graphics. Examples include those available at this [Resource Library](#) which contains a variety of graphics related to the important message of not moving firewood.
- Offer materials in languages other than English. For example, this [Resource Library](#) has “Don’t Move Firewood” materials in French and Spanish (in addition to English).

## Guidance for Reporting Potential Infestations

The network of local and state agencies responding to infestations like GSOB has a central reporting site that everyone should use to share potential sightings of infestations. Responses are added to a database that is accessed by several LA County departments who can respond to community members. Everyone should be directed to fill out the questions at this portal, [Report Goldspotted Oak Borer Symptoms - Goldspotted Oak Borer \(GSOB.org\)](https://www.gsob.org).

After submitting your information, please call LA County Fire's Invasive Pest Management Unit (IPMU) to let them know about the potential GSOB infestation, at **(818) 890-5719**.

### Instructions

- Before visiting the reporting site, make sure you have photos of the tree where you have seen a potential infestation.
- You'll need three photos if possible (samples provided below):
  1. A photo of the entire tree so the team can get a sense of its overall condition:



2. A close-up photo of the leaves so they can confirm the species:



3. A close-up photo of the bark on the tree trunk:



- Make sure to note any existing holes in the bark using an everyday object such as a pen to give a sense for scale.
- Go to [Report Goldspotted Oak Borer Symptoms - Goldspotted Oak Borer](#)

- Click the “Open Survey” button

**Goldspotted Oak Borer Symptoms Reporting Form**

University of California Cooperative Extension  
**Goldspotted Oak Borer**

Under a collaborative program, agencies and organizations are working together to determine the distribution, impact and possible prevention methods of tree mortality caused by Goldspotted Oak Borer (GSOB).

Local citizen awareness can help determine the locations of infestations. If you suspect a GSOB infestation in local oak trees, please answer as many of the questions in this survey as possible. Providing digital photos of the tree(s) showing reported symptoms will help us with an initial evaluation. You may upload your photos as indicated at the bottom of this questionnaire.

**Requested Photos:**

- One photo of an entire tree (so we can see the canopy and get a sense of its overall condition and size)
- One close-up photo of the leaves (to confirm the species of oak)
- One close-up of the bark surface on the main trunk
  - Note: We are especially interested in any insect exit holes on the bark surface.
  - When taking a bark photo, we ask that you place the tip of a pencil, pen or other object near an exit hole to give a sense of scale.
  - GSOB leave a D-shaped exit hole about 3-4 millimeters (1/15 inches) wide (approximately the diameter of an unsharpened #2 pencil lead).

See the [GSOB Field Identification Guide](#) for more information.  
 Note: The scale used for figure #11 on page 3 may be confusing; GSOB exit holes are approximately .15 inches wide, not .25 inches wide).

Contact information is important. After reviewing your report and photos, you will be contacted. Please be assured, your information will be kept private.

\* = Required

**Contact Information**

Last Name: \*

First Name:   
 (or initials)

Phone Number: \*

E-mail Address: \*

Tree location/address: \*

City \*

Zip Code \*

- You will see the following GSOB Symptoms Reporting Form:

The sections below walk you through the different portions of the reporting form.

- **Contact Information:** Provide your name, phone number, and email address so you can be contacted about your response. You’ll also be asked to provide the location of the tree as best you can, such as an address or along or near a roadway and describe the location. Your address is optional.
- **Tree Information:** Select the species of the tree if you know it, otherwise select unknown. You’ll be asked to select the symptoms of infestation you observe and the condition of the tree. The type of setting the tree is located in, the number of trees impacted if the sighting is on private property, size of the impacted tree, and details about decline are optional but helpful for the team to be aware of so they can locate the tree. It is ok if you can’t provide all of this information.
- **If Firewood Near Tree:** This section is optional but may help provide context for the source of the infestation. Questions include where firewood was sourced, if the firewood was well-seasoned which means it has been left to dry for an extended period of time, and if you were aware that firewood should not be transported far from its source.

- **How Did You Hear About Goldspotted Oak Borer:** Lastly, you'll be asked to share how you learned about GSOB. You can upload your photos of the tree or trees here, up to four individual files can be uploaded.

## **Who should we contact if we have questions?**

LA County Fire's Invasive Pest Management Unit is the best place to start if you or someone in your community has questions related to oak trees, GSOB or other issues affecting trees, or if they have questions about how to treat, store or remove firewood.

If you have questions, or you notice an oak tree may be experiencing symptoms of an infestation, call **LA County Fire Invasive Pest Management Unit (IPMU), at (818) 890-5719.**

The LA County Fire team serves as a clearinghouse for questions related to oaks and GSOB, if they can't answer your question, they will refer you to someone who can.

## **GSOB Updates and News**

If you or community members are interested in staying up to date on GSOB-related news, you can join the University of California's mailing list via the link on [www.GSOB.org](http://www.GSOB.org).

Choose "GSOB (Goldspotted Oak Borer) Info" in the Email Lists options after you submit your email address.



## Additional Resources

The links below provide additional information about oak trees in Los Angeles and California, the GSOB, resources from the “Don’t Move Firewood” campaign, and how to manage an infestation and treat infested wood. Links to recent news articles about GSOB are also included below.

### Oak Tree Identification and Guides

Resource	Summary
<a href="#">Oak Trees: Care and Maintenance</a> , LA County Fire Department [2003]	Contains the basics and guidelines for oak tree survival. Highlights oak tree ordinance, types of oak trees in the county, and additional resources.
<a href="#">Growing California Oak Trees</a> , University of California Agriculture and Natural Resources, Cooperative Extension (UCANR) [no date]	Available in <a href="#">English</a> and <a href="#">Spanish</a> . Provides step-by-step instructions on how to grow an oak tree from an acorn and lists some fun facts and wildlife that call California oak woodlands home.
<a href="#">Living Among Oaks? How to Restore Los Angeles County Oak Trees Informational Pamphlet</a> , LA County Department of Regional Planning [2024]	Pamphlet encouraging homeowners to restore oak woodlands and actions they can take from their own backyard.
<a href="#">Living Among the Oaks: A Management Guide for Woodland Owners and Managers</a> , UCANR [2018]	Overview publication on oak trees in woodlands. Includes visuals of many local oak species, a review of pests and diseases to look out for, and a checklist for reviewing the health of oak trees.

## GSOB Identification and Background

Resource	Summary
<a href="#">GSOB: A New Threat to Southern California</a> UCANR [2021]	Available in <a href="#">English</a> and <a href="#">Spanish</a> . Tri-fold brochure with photos of GSOB, map of infestation in Southern California, and “Don’t Move Firewood!” message.
<a href="#">GSOB.org</a> (website), UCANR	Includes several tabs with detailed sections about GSOB, what communities can do, and additional resources and publications.
<a href="#">Gold Spotted Oak Borer: Field ID Guide</a> , US Forest Service [2011]	Includes photos of the adult, larvae of GSOB, photos of trees affected by GSOB infestation, describes external and internal symptoms of trees, photos of oak species affected by GSOB, photos of GSOB infected trees.

## Preventing GSOB Movement

Resource	Summary
<a href="#">Don’t move firewood!</a> (website)	Posters, graphics and additional messaging about effects of moving firewood on the spread of GSOB and other pests.

## Managing GSOB

Resource	Summary
<a href="#">GSOB: Community Preparedness Plan: Guidelines for Strategic Action before GSOB Strikes your Community</a> , UCANR [2021]	Pamphlet includes a map of areas where oak trees are susceptible and questions to consider when organizing for action.

Resource	Summary
<a href="#">Goldspotted Oak Borer (GSOB) Management</a> , ArcGIS Story Map [2021]	Includes several maps which display where GSOB is established and oak woodlands in California potentially at risk. Many resources related to GSOB management, assessing and reporting a potential GSOB infestation, managing infested wood, potential treatments and more.
<a href="#">GSOB Infested Wood Best Management Practices</a> , UCANR [2022]	Best management practices to prevent the spread of GSOB through the movement of logs and firewood.

**Recent Articles about GSOB**

- [An Invasive Beetle That Has Killed Thousands Of Trees Is Inching Toward The Santa Monica Mountains. LA County Is Trying To Stop It – LAist](#) [May 2024]
- [The race is on to stop a tiny pest from killing Southern California’s native oak trees – Pasadena Star News](#) [May 2024]
- [Tree-killing beetle expected to reach Santa Monica Mountains – Los Angeles Times](#) [May 2024]