



Best Management Practices (BMPs) for Preventing the Spread of Goldspotted Oak Borer (GSOB) Through the Movement of Logs & Firewood

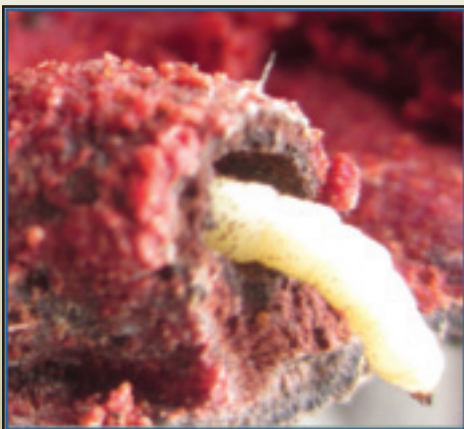
November 2015

OVERVIEW

Transporting GSOB-infested logs or firewood can introduce GSOB into un-infested areas. These BMPs were developed to help landowners and the firewood industry safely utilize wood from within a known infestation area. Documenting compliance with these BMPs may reduce liability against claims of knowingly spreading GSOB by moving or selling infested wood. Be aware that firewood consumers are being educated about the dangers of GSOB-infested wood and may inquire about the wood's origin and if BMPs were followed to ensure that it doesn't contain GSOB. Documentation that you followed these BMPs could be included along with the bill of sale/permit information required by California law (see California Penal Code Section 384.5) when transporting wood from its harvesting site and presented to retailers and/or the ultimate consumers.

Why are BMPs Needed?

Wood from GSOB-killed trees can harbor living GSOB larvae under its bark. Pupation (transformation) of GSOB larvae into adult beetles can occur for well over a year after a tree dies. These adults may emerge from the bark any time during their flight season (May through October) after the tree has been dead for a year. Therefore, at a minimum, logs or firewood from GSOB-killed oak trees should not be moved out of an infested area until the wood has seasoned (dried out) for at least one full year plus a subsequent GSOB adult flight season.



Left: GSOB larva preparing a pupation chamber near the outer bark.

Right: GSOB adult beetle that has nearly completed the pupation phase near outer bark.

WOOD SEASONING METHOD BMP

The table below will help determine the absolute minimum amount time required for wood from GSOB-killed oak trees to be seasoned sufficiently to be safely moved for processing or taken to market. A “two year” seasoning rule is the easier to apply, but for trees that must be moved before a full two years:

- GSOB-infested trees died or were cut down in the **spring** – don’t move until November 1st of the next calendar year.
- GSOB-infested trees died or were cut down in the **summer** – don’t move until November 1st of the next calendar year.
- GSOB-infested trees died or were cut down in the **fall** – don’t move until November 1st of the next calendar year.
- GSOB-infested trees died or were cut down in the **winter** – don’t move until November 1st of the next calendar year.

When in doubt, season the wood for a full two years.

Basing a determination of when a tree died solely upon when its crown (branches and leaves) turned brown is not always reliable. The cambium (living tissue between the bark and sapwood) may live a period of time after the leaves brown, especially in the main trunk near the base of the tree. Starting the “one year” clock after a tree is cut down is more certain than using a dead crown as the indicator. Trees obviously long dead (they have fallen over, or they are standing but totally devoid of leaves and/or their bark is falling off) don’t need to be held to such a strict standard. However, you are encouraged to err on the side of caution in determining when the tree died.

Other considerations for seasoning firewood:

- It is important to keep a record of when trees die by keeping notes or tracking it on a calendar. Marking trees that died at the same time using different colors of flagging or paint can help prevent confusion with trees that died in different years.
- Don’t mix wood from trees that died in different seasons or different years, otherwise you’ll need to hold all the wood in the entire pile until the most recently killed trees have completed their seasoning period.
- Splitting the wood at the time the tree is cut down may aid the drying process.



CONTAINMENT STRATEGY METHOD

If wood can't be moved away from uninfested trees, consider covering the wood piles with thick mil, clear, plastic tarp or metal window screen (with a mesh small enough to stop mosquitoes) to trap emerging GSOB until they die from starvation. Note that **covering cut oak wood with clear plastic does not kill developing GSOB beetles in the bark**. Covering very large piles of wood with plastic or screen may be impractical. Either method will be completely ineffective if holes or cracks open up in the covering or the covering is pulled off to access the wood during the May-October flight season.

Containment strategy considerations:

- Tarped or screened piles should be located in full sun to speed up the drying process.
- Adult emergence can be contained if you maintain a tight seal and the wood is left covered from May through October. Use UV resistant plastic, or double layer plastic to prevent tearing and avoid pulling it tight over sharp edges. Seal the edge of the plastic with dirt for an air tight seal and for resistance to flapping in winds.
- Metal window screen can be more durable than plastic and potentially re-used if handled carefully. However, it is more difficult to work with than plastic and more expensive. The air flow allowed by screening helps the wood to dry out faster without mold forming. Screen is normally sold in narrow widths and may require creating the enclosure using multiple seams; make sure that all seams are well secured.



Containment Strategy Photos (starting upper left moving clockwise) 1. Split oak wood in an aluminum window screen envelope. 2. Oak rounds in window screen envelope. 3. Oak wood pile under heavy mil clear plastic and dirt around the edge for an airtight, escape-proof seal. 4. Tarp has been blown off or removed during the flight season making it totally ineffective.

BMP Options to the Seasoning Method for Making GSOB-Infested Oak Wood Safe to Move

Debarking Firewood Option:

Oak firewood that is free of bark will not transport GSOB. However, debarking can be very difficult to accomplish on “green” wood from recently killed trees; bark tends to come off the wood more easily over time as it dries out. If you choose the debarking option, make sure that the bark is stripped off all the way to the sapwood and not just the outer layer of bark is removed. Season, destroy or carefully dispose of the removed bark because it can still harbor borer larvae. Bark can be enclosed within plastic tarp, plastic bags or fine mesh window screen to allow it to season for two years. Make sure there are no seams or holes that would allow the beetles to escape.



Debarked coast live oak firewood

Heat Treatment:

Heat treatment of infested wood material at 160°F for a minimum of 75 minutes in an automated wood-drying kiln has been shown to eliminate many insects and diseases from firewood. These kilns have the capability of measuring and recording temperature time and duration well inside a pile of wood. However, no scientific study has been conducted to confirm that this temperature and time standard will kill GSOB.



Commercial-sized tub grinders may be required to handle large pieces of oak.

Grinding Option:

Grinding to a 3” minus standard in a tub grinder will kill GSOB in infested wood. Many standard chippers used by the landscaping or arborist industry may be of insufficient size and capacity to safely handle large diameter rounds of oak wood; a tub grinder or whole-tree chipper is likely required. In sufficient quantity, the chips resulting from the grinding may have market value as cogeneration fuel or other commercial products such as soil amendments. Ground wood chips can be spread back over the property as mulch or ground cover, but please check with Cal Fire or your local fire agency to ensure you are not adding to the fire hazard by choosing inappropriate locations or depths.

Visit www.GSOB.org for more information.



University of California
Agriculture and Natural Resources