

Southern California's Collaborative Responses to
Goldspotted Oak Borer and Invasive Shot Hole Borer
in the Absence of Regulation or Significant Funding



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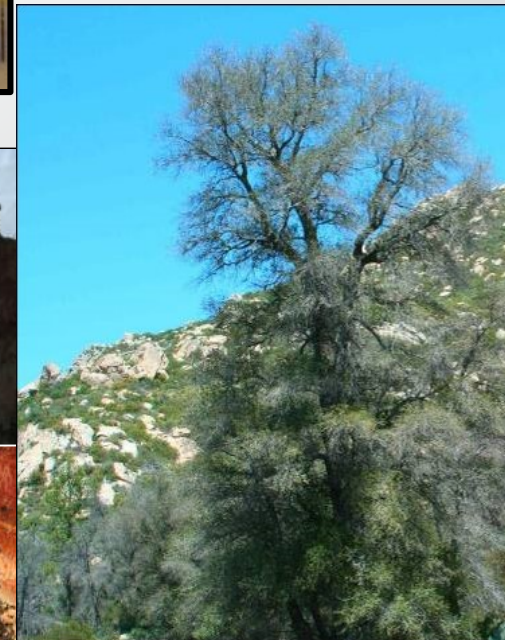
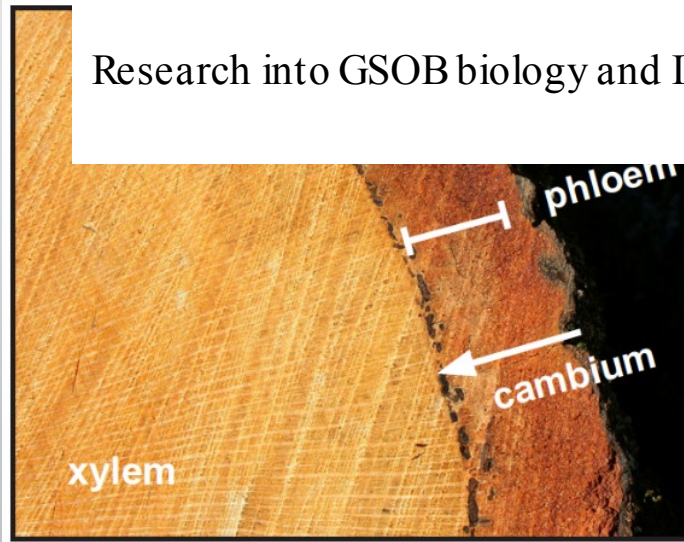
Goldspotted Oak Borer (GSOB) (*Agrilus auroguttatus*)

GSOB is a non-regulated pest = No Quarantine

- APHIS NPAG classified: No Action – Non-Reportable
- County Ag Commissioners ill-equipped to regulate firewood
 - Already occupied with pests like citrus psyllid/HLB
 - Riverside County did explore regulatory options
- State of California would need the support of Ag Commissioners

In the absence of regulatory authority, outreach and education became the focus to reach out to the oak woodland owners, firewood producers, firewood retailers and firewood consumers.

Research into GSOB biology and IPM was another important focus



2008 Discovery of GSOB in San Diego County

Initially introduced into eastern San Diego (from AZ) in the 1990's (transported in firewood)

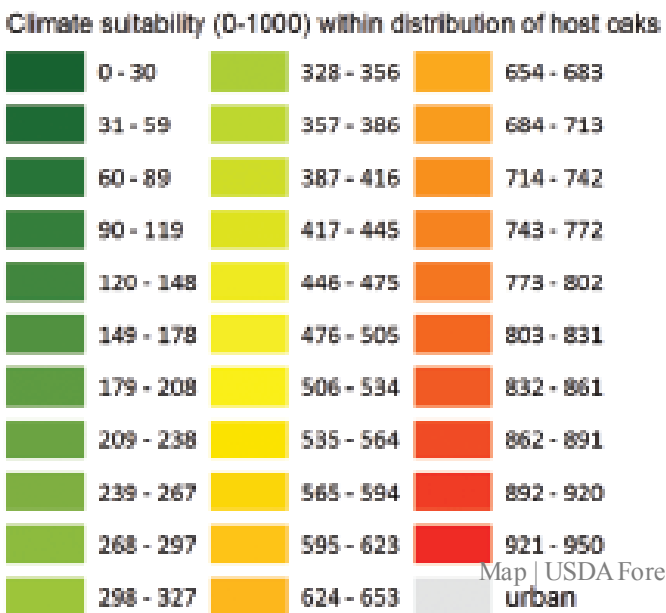
Not identified as the primary cause of major oak mortality in San Diego County until 2008

10+ years of natural spread was supplemented by long distance, artificial spread in firewood. The horse was already out of the barn!

GSOB posed little problem in their Arizona range... little research and no need for management options

San Diego's climate, ecosystem & oak species much different than GSOB's range in SE Arizona. Catastrophic results!

Resources at Risk: Potential Spread of Goldspotted Oak Borer into Suitable Habitat





2009 - Goldspotted Oak Borer Steering Committee formed

- Centered around agencies with potential regulatory authority supported by UC & others
- Research (biology & IPM)
- Detection and mapping
- Outreach and Education
- Briefed legislators
- Sought funding
- Explored regulation options



Gold Spotted Oak Borer Incident Action Plan

Operational Period: January 1, 2012 through December 31, 2012

Incident Objectives (ICS 202)

1. Facilitate effective communication and collaboration between San Diego GSOB Steering Committee members, public and private individuals and organizations, and local, tribal and state governments and agencies.
2. Identify agencies, groups, and individuals involved in developing methods for controlling and limiting the spread of GSOB and support the implementation efforts.
3. Identify stakeholders and develop a communications plan to effectively communicate GSOB environmental, socio-economic, and public safety issues.
4. Support and guide applied entomological, pathological and wood handling research to assist in effective GSOB management
5. Encourage lead agencies and stakeholders to maximize support, including funding and staff, to address the complex issues associated with GSOB.

- Agencies redirected staff
- Grant funds for outreach, education and research
- Established a UCANR Collaborative Tools Group
- USFS Forest Health Protection and UCIPM research efforts
- Actively sought out partners through community meetings



Don't Let GSOB Bug You!

Dear Arborist:

Oak trees in San Diego County are under attack. We need your help!

The Goldspotted Oak Borer (GSOB; *Agrilus auroguttatus*), an introduced non-native beetle, is attacking and killing tens of thousands of coast live oak, California black oak, and canyon live oak trees in San Diego County. If GSOB is introduced into new areas, it has the ability to decimate susceptible oaks. GSOB can be rapidly spread over long distances through the movement of infested firewood.

In order to protect your clientele's oak trees, it's critical for you to understand the potential consequences of transporting or receiving GSOB-infested wood. Currently, there are no effective treatments that can eradicate GSOB once it becomes established, and preventative treatments are only feasible for individual high-value, high-risk trees. Therefore, the single best tool currently

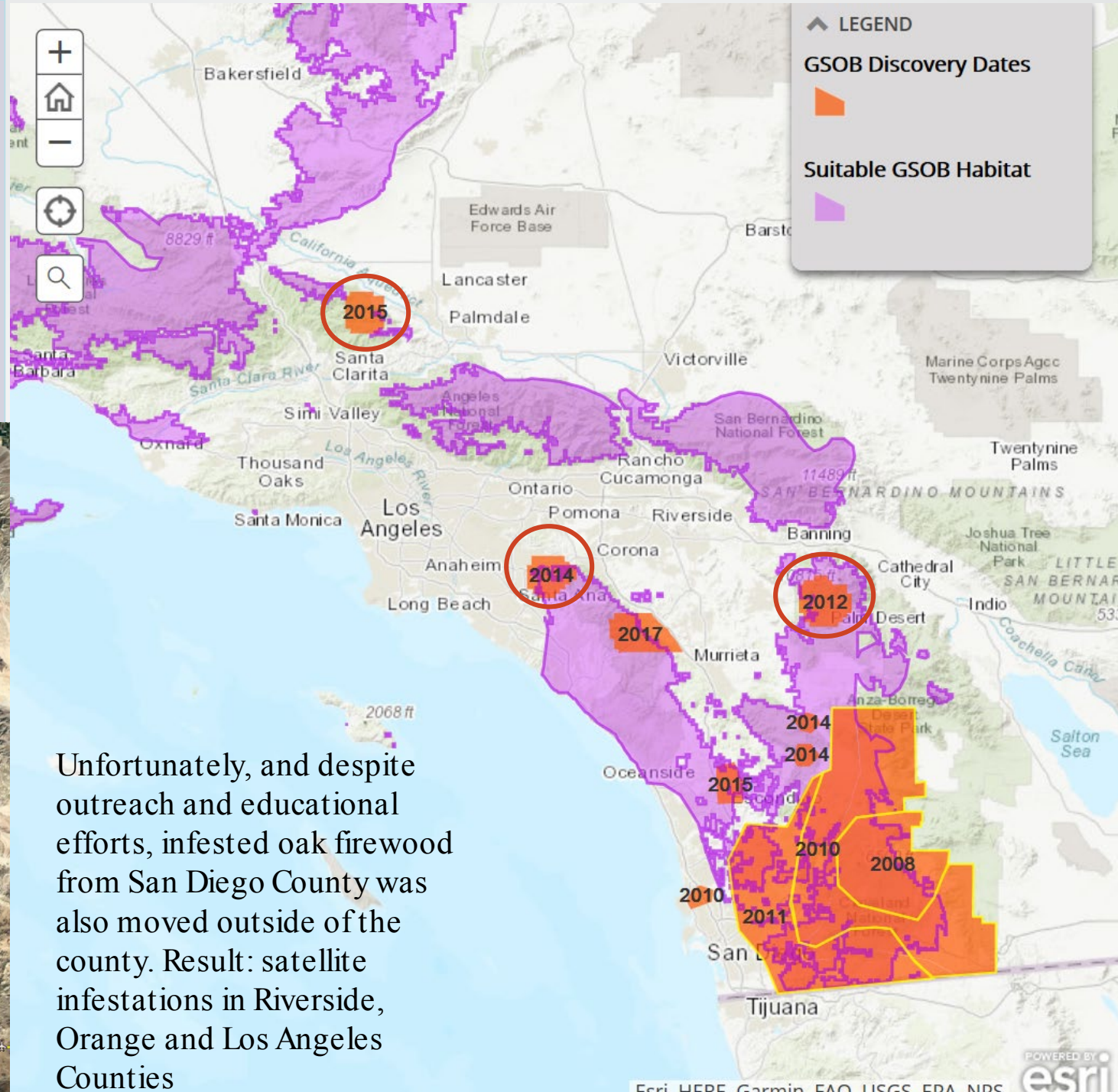
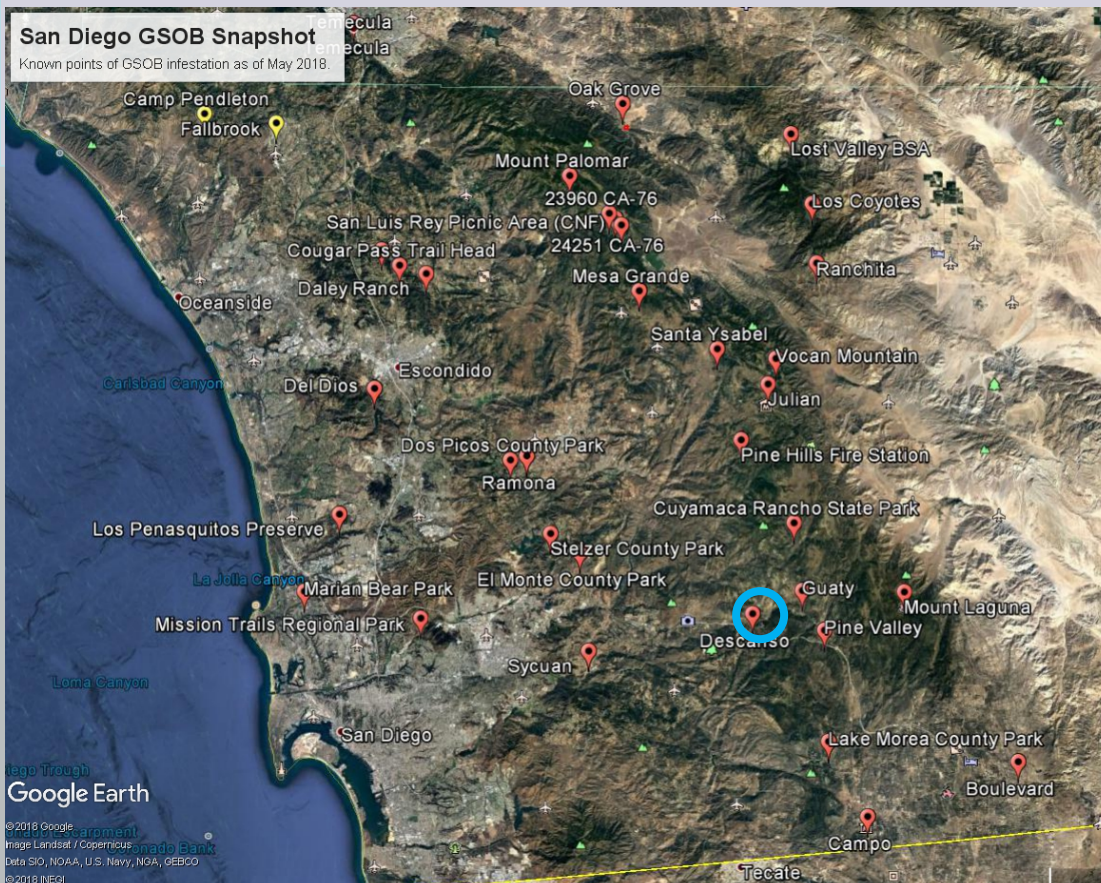
Outreach and education initially started in San Diego, but eventually GSOB workshops were held in every SoCal County in anticipation that GSOB could and would spread.



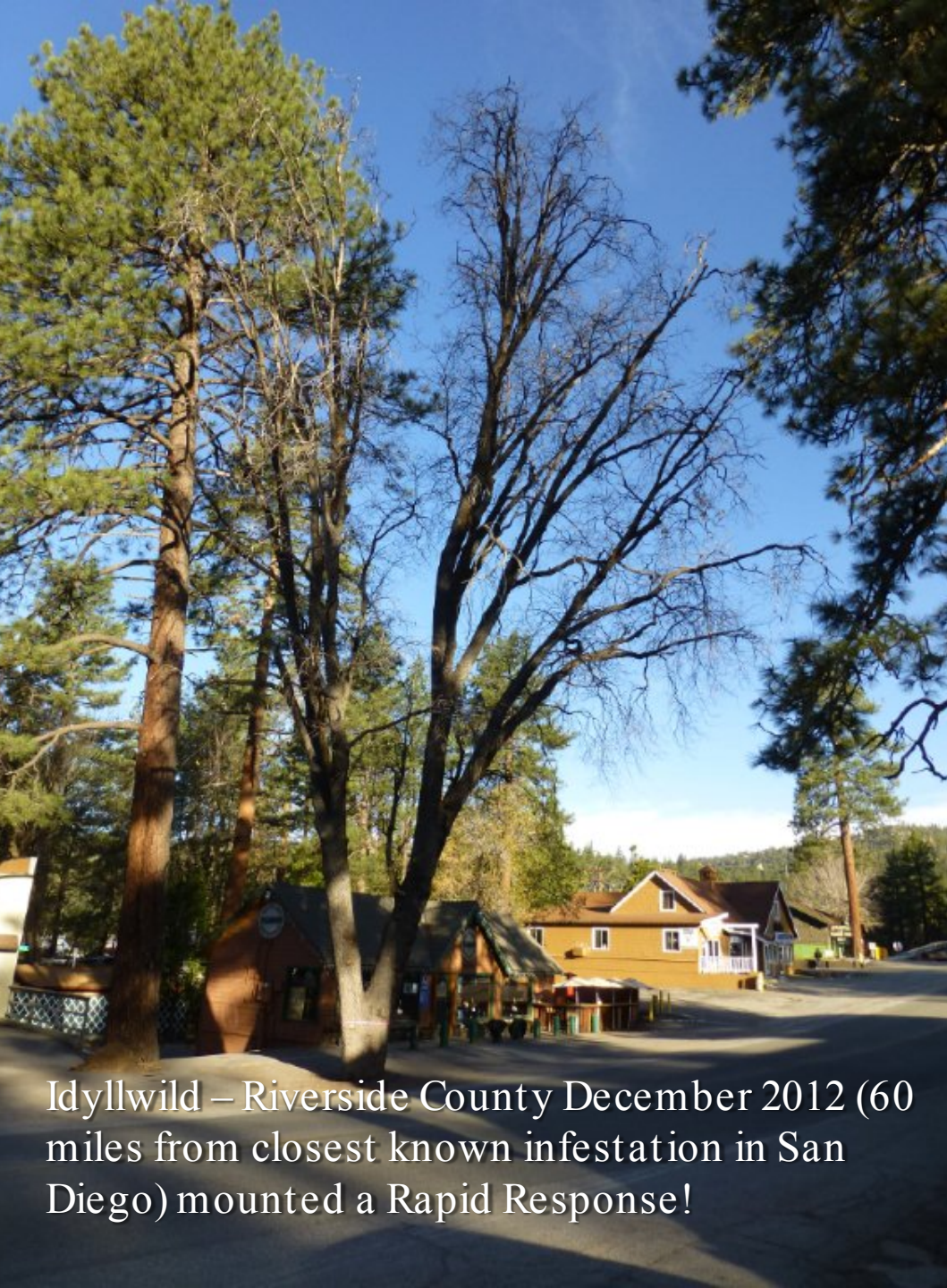
Field training for GSOB ID proved critical for agencies & volunteers

GSOB's natural spread potential (potentially up to a few miles per year where oaks are contiguous) was greatly exceeded by the movement of infested firewood. GSOB was able to leapfrog over suitable oak habitat.

As a result of firewood movement and natural spread, GSOB has been discovered in most of San Diego County.



Unfortunately, and despite outreach and educational efforts, infested oak firewood from San Diego County was also moved outside of the county. Result: satellite infestations in Riverside, Orange and Los Angeles Counties



Idyllwild – Riverside County December 2012 (60 miles from closest known infestation in San Diego) mounted a Rapid Response!



Existing Mountain Area Safety Task Force effort

- All public agencies
- So. Cal. Edison
- Fire Safe Council
- Garden Club
- Local arborists
- U. of California ANR
- County Supervisor
- Residual tree removal funds!



Community awareness, funds & preparedness = rapid response

- Outreach efforts pre-GSOB
- Initial GSOB ID by Cal Fire
- Removed by Cal Fire assisted by Caltrans - hauled to community's tub grinder
- MAST adopted GSOB problem. All MAST collaborators engaged
- Notification letter sent out to all property owners
- GSOB ID training for agencies, SCE & arborists and volunteers



Informal investigation: Wood from San Diego transported to Idyllwild for second homes and by wood vendors



Local arborist innovations



A tub grinder was already located in the community makes proper disposal easy.



Orange County - Weir Canyon GSOB 2014 (a secure county park reserve and 60 miles from closest known GSOB infestation)

Emerging Tree Pests of Orange County - 2015

(Initially formed for GSOB, but ISHB quickly added)

- All relevant County agencies (Fire, Ag Commissioner, Parks, Public works, Waste Management)
- UC ANR
- State agencies (Cal Fire, Cal Trans, State Parks)
- Irvine Ranch Conservancy, Rancho Mission Viejo
- Camp Pendleton
- USFS Forest Health Protection & Cleveland NF
- Others including some city arborists and volunteer groups

Even more cities need to engage!

Survey and Management of the
Goldspotted Oak Borer Outbreak in
Weir Canyon, Irvine Ranch Open Space
2014-2016



Prepared for:
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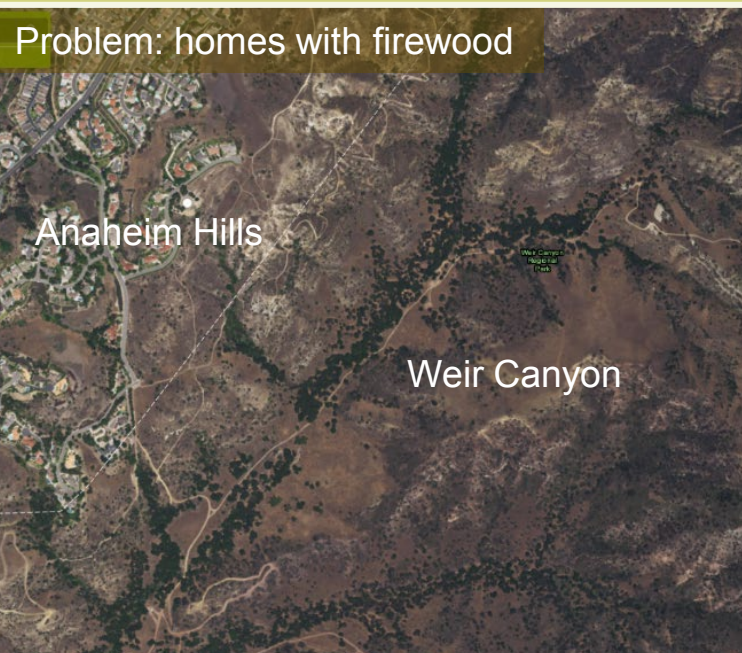
**Maps, photos, and data provided by IRC*

Rapid Response!



Dr. Tom Scott (UCCE Specialist)
analyzing the level of GSOB attack
(note multi-year exit holes)

Problem: homes with firewood



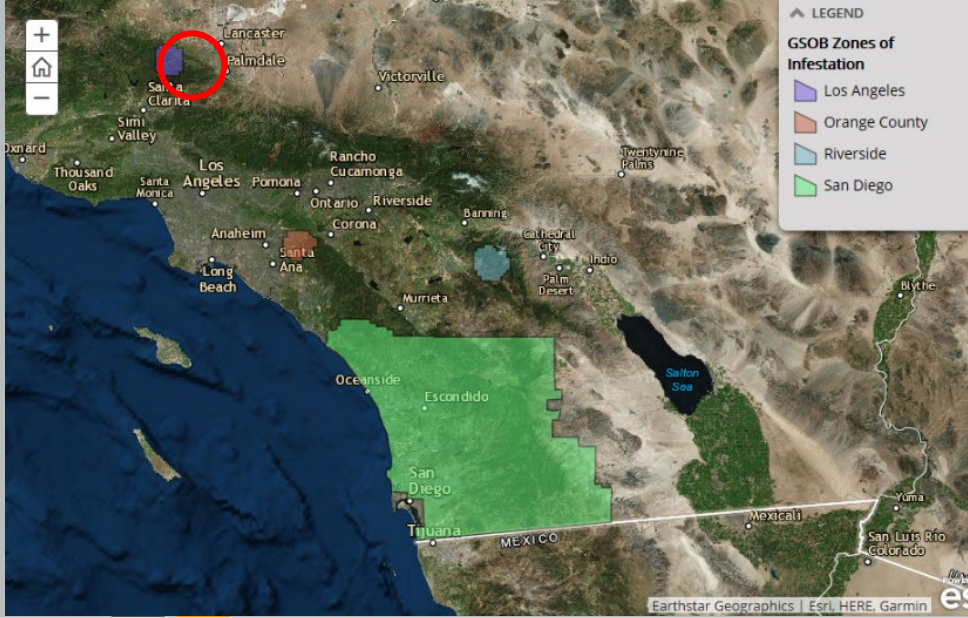
OCFA crew work



Multiagency GSOB ID Training

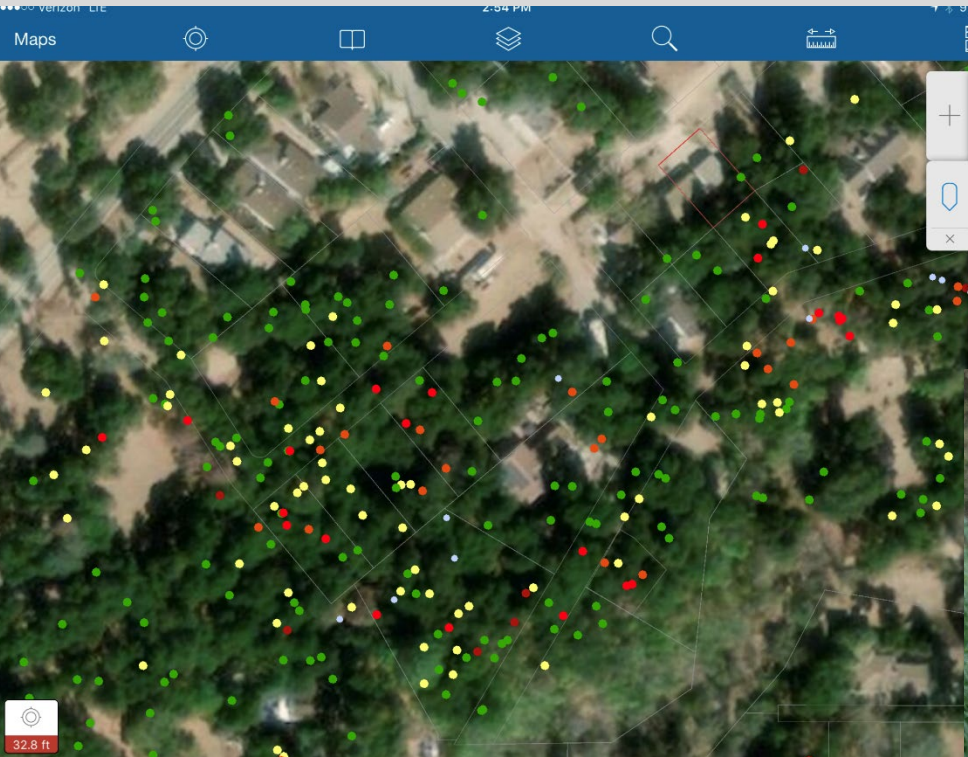


Canyon Sign Program



Green Valley Infestation (NE LA County discovered 2015)

- 2015 discovery by SCE arborist who had attended GSOB field training in Riverside County.
- Anecdotal evidence: firewood imported from San Diego Cnty
- LA County Fire/Forestry, LA County Ag Commissioner, Green Valley Water District and Angeles NF teamed together with community groups (Neighborhood Watch & Town Council)
- Outreach to the community begin immediately!





Vented tarp experiment



Slabbing bark with portable mill

Burying infested bark trial



Multi-agency response Photo: Robin Allison



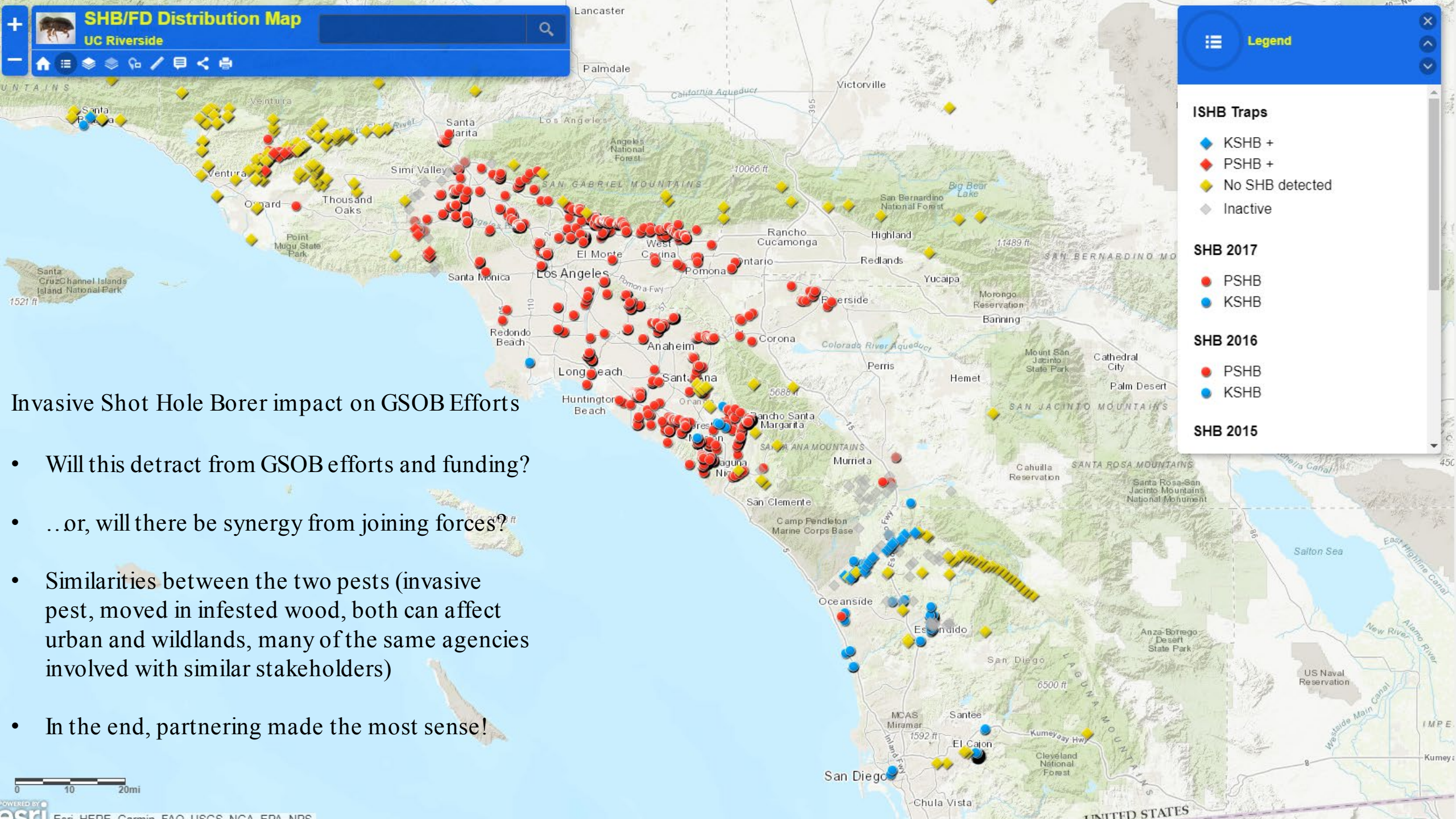
LA County fire crew removes & chips trees



Wood exchange program



Angeles NF tree removals
Photo: Villius Zukasas USFS



Invasive Shot Hole Borer impact on GSOB Efforts

- Will this detract from GSOB efforts and funding?
- ..or, will there be synergy from joining forces?
- Similarities between the two pests (invasive pest, moved in infested wood, both can affect urban and wildlands, many of the same agencies involved with similar stakeholders)
- In the end, partnering made the most sense!

A whole host of collaborative groups were in place and functioning before the approval (with funding) of state legislation formally supporting efforts by the CSIC plan.



Recommendations for others:

1. Engage local, state and federal agencies and universities with responsibility or an interest.
2. Make private industry aware but also seek their input
3. Public outreach and education fosters awareness, concern and involvement on multiple fronts
4. Keep politicians informed
5. Seek out local and community groups for support
 1. Fire Safe Councils
 2. Master Gardeners
 3. Other local and regional groups
6. Look for partners on the national stage (i.e. Don't Move Firewood campaign)
7. Take advantage of every opportunity to spread the word (but not the pest!)

Thank you!

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Clockwise from upper left: GSOB ID kits for agency personnel, volunteers, interpretative sites; GSOB/ISHB tabletop displays; ISHB field training in Irvine; GSOB/ISHB presentations at ISA meeting in Anaheim



Acknowledgements

Tom Scott, PhD., UCCE-UCR

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Orange County Parks

Irvine Ranch Conservancy

USDA Forest Service/State and Private Forestry

Los Angeles County Fire Department

Special acknowledgment to UCANR/UCR who employed me from 2010 – 2016 when many of these photos were taken.

Resources

www.GSOB.org

www.Firewood.ca.gov