

Goldspotted Oak Borer and Oak Mortality

Quarterly Situation Report

July 1 through September 30, 2013

GENERAL ACTIVITIES

This quarter saw discoveries of GSOB in two new areas of San Diego County and several additional trees in the San Jacinto Mountain's community of Idyllwild in Riverside County. Outreach efforts continued and significant participation by citizen scientist volunteers in conducting field surveys, particularly in the Idyllwild area. Efforts to reach out and involve counties outside of San Diego and Riverside continued this quarter, along with continued cooperation to the GSOB Early Warning System and partnering agencies.



New discoveries of GSOB infestation occurred in San Diego County this quarter



Monitoring and Detection

Follow-up on Reports of GSOB Made Through the GSOB.ORG Website

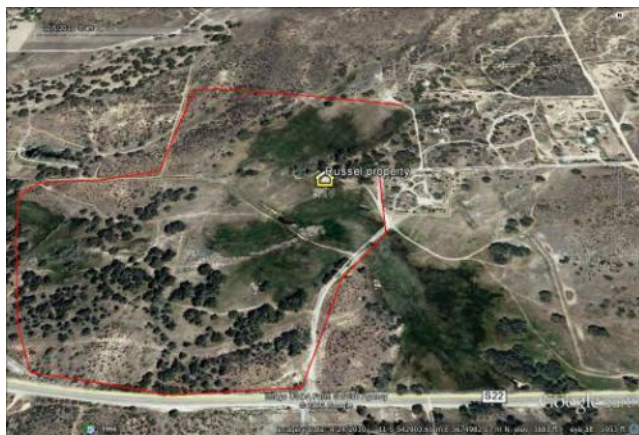
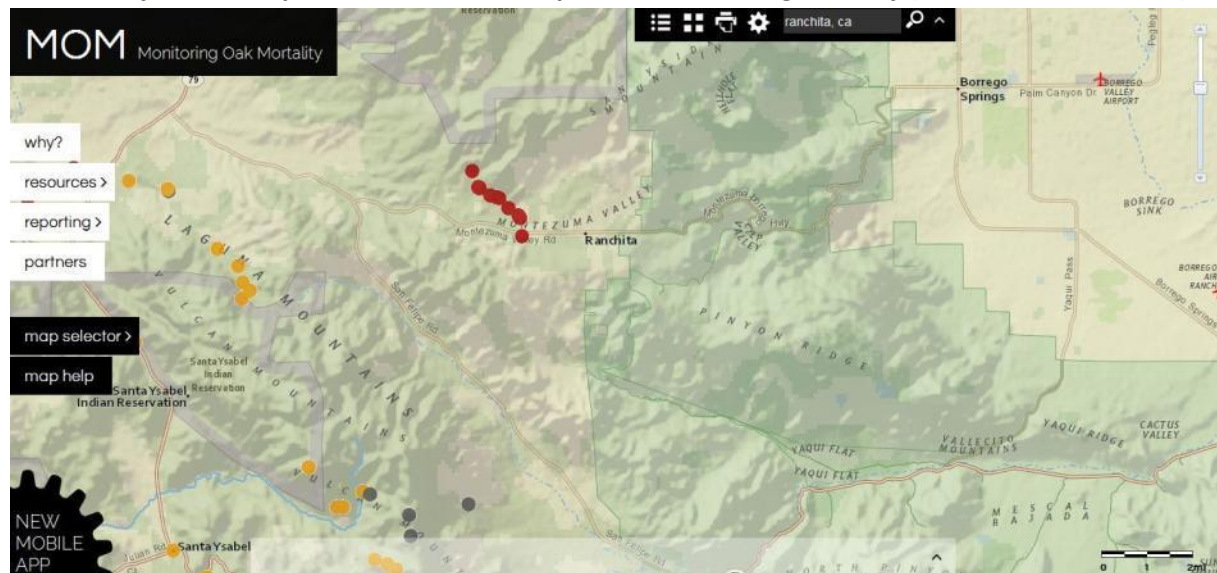
We continue to follow-up reports of possible GSOB attack from Southern California counties submitted through the gsob.org website. By requesting pictures and follow-up information from the reporting parties, we are minimizing the need for site visits by agency or university personnel. A new GSOB find in Ranchita was reported through the website.

San Diego County Update

We were alerted to a possible new GSOB outbreak area located at Ranchita in San Diego County by an alert property owner. San Diego Gas and Electric personnel or their line-clearing contractors had advised the property owner that several trees had GSOB and required removal due to their proximity to power lines. SDG & E did not alert us to the discovery for unknown reasons; we have since spoken with SDG & E and their subcontractors to rectify the reporting situation.

CAL FIRE's Kathleen Edwards and Kevin Turner toured the Ranchita site with the property owner and identified at least 20-25 trees with GSOB. Several trees were already dead. San Diego County Agricultural Commissioner's inspectors have subsequently visited the site.

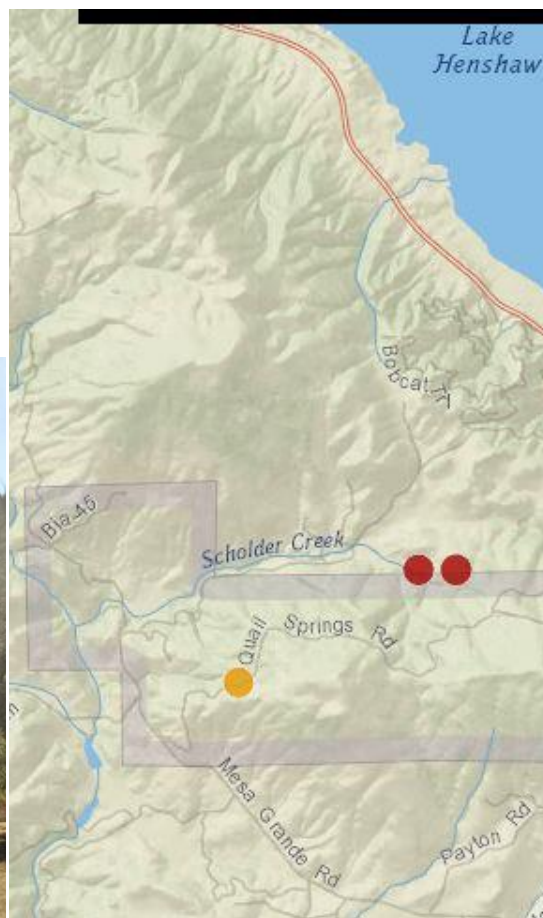
Ranchita Infestation represents an eastern expansion in San Diego County (see new tree red dots)



Unfortunately, the Ranchita was not the only expansion of GSOB found in San Diego County this quarter. Through personal connections made at the September GSOB field training day at Dos Picos Park, we received other invitations to look at suspect trees in other areas.

In mid-September, Kevin Turner and Tom Scott were asked to look at Nature Conservancy lands on the north side of Mesa Grande. Unfortunately, here too GSOB-infestation was discovered, although we knew it to be present on Mesa Grande Indian Reservation land to the south. The property owner and Conservancy biologists are considering possible management options.

Looking south from NC lands towards the reservation



San Jacinto Mountains (Riverside County) Update

To date, a total of 22 California black oaks (*Q. kelloggii*) have been confirmed to have GSOB in the San Jacinto Mountains, an increase of eight additional trees since last quarter's report. None of the 22 trees has been on national forest land, though some of the trees were located just hundreds of yards from the national forest boundary. So far, no GSOB in canyon live oaks has been detected. Coast live oaks at lower elevations of the San Jacinto and Santa Rosa mountains have not had any GSOB attack that has been detected.

Two of the newly identified trees were detected by agency personnel that had attended our GSOB ID training; one was the local San Bernardino National Forest San Jacinto District forester, Kayanna Warren and the other was Riverside County TLMA (County Road Dept.) Idyllwild Transportation Yard supervisor, Ryan Righetti. In addition, Southern California Edison personnel and SCE contractors have also been a valuable source for identifying potentially infested trees as have private tree service companies that attended GSOB ID training.

Idyllwild EWS survey teams examine larvae from one of the newly discovered GSOB-infested trees



Citizen scientist EWS volunteers from the Mountain Communities Fire Safe Council “Woodies” and Idyllwild Garden Club have inspected a total of 102 parcels, evaluating 404 individual trees, identified 15 dead/dying trees, 61 in serious decline and 314 healthy trees. Eleven volunteers contributed a total of 315 hours in conducting surveys in the Idyllwild area this quarter.

Outreach and Education

Outreach Efforts – Jan Gonzales, GSOB Outreach Coordinator
UC Cooperative Extension-San Diego County jggonzales@ucanr.edu

During the past three months we have organized and held and/or participated in several GSOB outreach activities.

- Insect Fair at the San Diego County Botanical Gardens, July 13-14, 2013. Provided tabletop display with samples and handout materials and worked a shift ‘manning’ the booth.

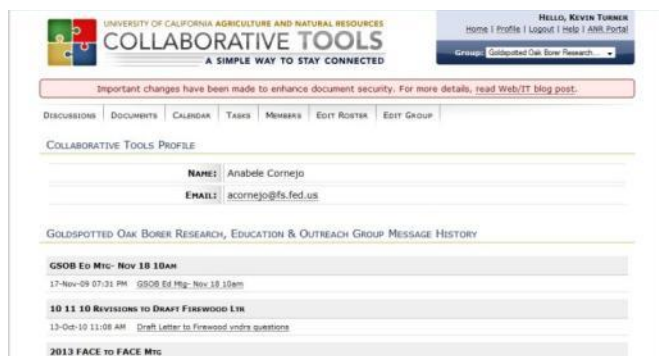


- Organized and hosted conference call for stakeholders about GSOB education and outreach activities and resources on August 7, 2013 with 31 people registered for the event. The team of Anabele, Kevin, Tracy, Roger, Edwina and Jan covered topics on collaborative efforts, San Diego County Departments of Agriculture and Parks and Recreation GSOB activity, print and online resources and success of Early Warning System volunteers in Idyllwild.
- Participated in annual San Diego Professional Tree Care Association conference and field day, August 15-16, 2013. Provided GSOB display with handouts and answered questions.
- Organized and held GSOB field training at Dos Picos County Park in Ramona on August 21, 2013. There were 62 people in attendance comprised of local residents, instructors, park managers, representatives from local tribes, arborists and others. Presenters were Tom Scott, Kevin Turner and Cara Washington (UC Riverside ANR), Pat Nolan (CoSD Ag Commissioner's Office) and Tom Coleman (US Forest Service/Forest Health Protection). County of San Diego news attended and produced a short video news story for County staff, <http://countynewscenter.com/video/chronicles?v=152698>.



Participants rotated through 4 stations staffed by an interagency cadre

- Organized and held a community event in Ramona at Dos Picos County Park on September 25th to update residents about GSOB identification, management research and strategies, firewood management and oak seedling propagation. Event held in partnership with the Ramona West End Fire Safe Council, County of San Diego Parks Department and the US Forest Service-Cleveland National Forest-Descanso District. Twenty-four residents from the local community attended.



Outreach Committee Chairperson Anabele Cornejo of the Cleveland National Forest keeps the Outreach Committee on task with conference calls approximately every two weeks. Anabele was also the moderator for our first open to the public "stakeholders" conference call which was very successful and will be repeated quarterly.

(Jan's work continued)

- Provided support organizing GSOB training event for Santa Barbara County staff and stakeholders. Event to be held November 1, 2013.
- Updated GSOB trifold brochure and arranged for printing 10,000 copies.
- Arranged for printing of 5,000 copies of UC IPM Pest Note.
- Wrote and submitted abstract on GSOB poster and tabletop display for the ANREP Conference, May 2014.
- Conducted follow-up on grant proposals previously submitted.
- Distributed handout materials:
 - 1,500 GSOB trifold brochures
 - 750 GSOB I.D. cards
 - 250 Firewood Advisory handouts
- Participated in GSOB meetings/conference calls with the Steering Committee and the Education and Outreach Committee.
- Maintained website correcting broken links, updating events and managing event registration and evaluation surveys.
- Responded to 15 phone calls and/or emails regarding GSOB inquiries.

Collaborative Tools Outreach Calendar for the July through September 2013

9/25/2013	GSOB Presentation-Ramona- CA	Jan Gonzales
8/29/2013 - 8/30/2013	Pest and Pathogen Conference	Kevin Turner
8/21/2013	GSOB Field Training-Dos Picos County Park	Jan Gonzales
8/16/2013 - 8/17/2013	PTCA Seminar and Field Day	Jan Gonzales
8/7/2013	GSOB Stakeholders' Conference Call	Jan Gonzales
7/17/2013	GSOB Volunteers Survey Training	Kevin Turner
7/13/2013 - 7/14/2013	Idyllwild Lemon Lilly Festival	Kevin Turner
7/13/2013 - 7/14/2013	Annual Insect and Garden Festival	Tracy Ellis

Collaborative Tools Training Calendar for July through September 2013

Demand for GSOB training sessions and informational meetings remains high.

Pest and Pathogen Conference at Huntington Gardens

Dr. Tom Scott, Dr. Tom Coleman and Kevin Turner all spoke and set up displays at this conference which proved to be an excellent opportunity to reach many important people with the message about the threat of GSOB.

Twenty GSOB ID kits were distributed at this meeting along with publications and other outreach materials. Additional ID kits were requested and sent to several participants that didn't receive one at the conference.



Deadly Pests: Emerging Threats to Southern California's Trees



Photos (left to right):
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and Steve R.
Garnsey, Maxx Echt,
Charlotte Pienkos,
James E. Zablotny

Super pests have arrived in Southern California, and they're here to stay. What can be done to detect and prevent biologically and economically devastating infestations? Gather with arboriculturists, public garden professionals and other community leaders to learn the latest in non-native insect and disease research and management from the region's foremost experts.

SAVE THE DATE:
August 29-30, 2013
San Marino, California

Participants will also have opportunities to connect with new collaborators and to strategize about strengthening between the link between local actions and efforts to enhance state and national policies.

By invitation only.
Early RSVPs may be made to GardensRSVP@huntington.org

Hosted by The Huntington Library, Art Collections,
and Botanical Gardens
1151 Oxford Road, San Marino, CA 91108

San Diego GSOB Steering Committee

The GSOB Steering Committee meeting met on July 9th and made a decision to assist the City of San Diego with the development of an Integrated Pest Management plan for GSOB in city parks. We discussed this year's BIA assistance to local reservations with preventatively spraying high-value, culturally important oak trees. The San Diego County Agricultural Commissioner's office will consider providing a list of properly licensed pesticide applicators who do GSOB preventative work similar to the Riverside County program.

GSOB ID Kits

The GSOB ID kits have proven to be very effective tools that aid both detection and outreach/education. To date we have produced and distributed nearly 200 GSOB ID kits to agencies, schools/colleges and interested groups, with an additional 100 kits in the assembly stage. EWS volunteers find them helpful in identifying GSOB infestation and also for educating various property owners they come in contact with while doing their inspections.



San Diego County Parks GSOB Activity Report – Roger Covalt and David Duran

<u>Unit name</u>	<u>Location of following</u>	<u>New GSOB trees</u>	<u># of Trees dropped due to GSOB</u>	<u>Other GSOB concerns</u>
Dos Picos				
	Campground	2	8	One GSOB tree has been dropped and tarped. The other 2 GSOB trees will be dropped soon.
	Day Use, Area 1	0	0	
	Day Use, Area 2	0	1	
	Day Use, Area 3	0	1	
	Along Service Road	1	5	

<u>Heise Park</u>	<u>New GSOB trees</u>	<u># of Trees dropped due to GSOB</u>	<u>Other GSOB concerns</u>
Picnic Area # 1	1		Continued oak mortality, mainly Coast Live but Canyon Oak now showing signs.
Entrance Drainage	1		Massive Coast Live mortality. Majority of trees have been removed
RV loop	1		Continued crown thinning, Coast live and Black oak mortality
Cabin Loop	1		Canyon oaks showing signs of infestation
Volunteer loop			Canyon oaks showing signs of infestation, continued thinning throughout.
Middle Loop	2		Continued oak mortality, mainly Coast Live.
YC1/Pond	2		Canyon oaks showing signs of infestation
Upper loop	5		Large amount of trees on verge on dying
Julian Estates			
Ranger residence # 1			
Ranger residence # 2	8		Massive dieoff which appears to be a continuation of the entrance drainage dieoff.

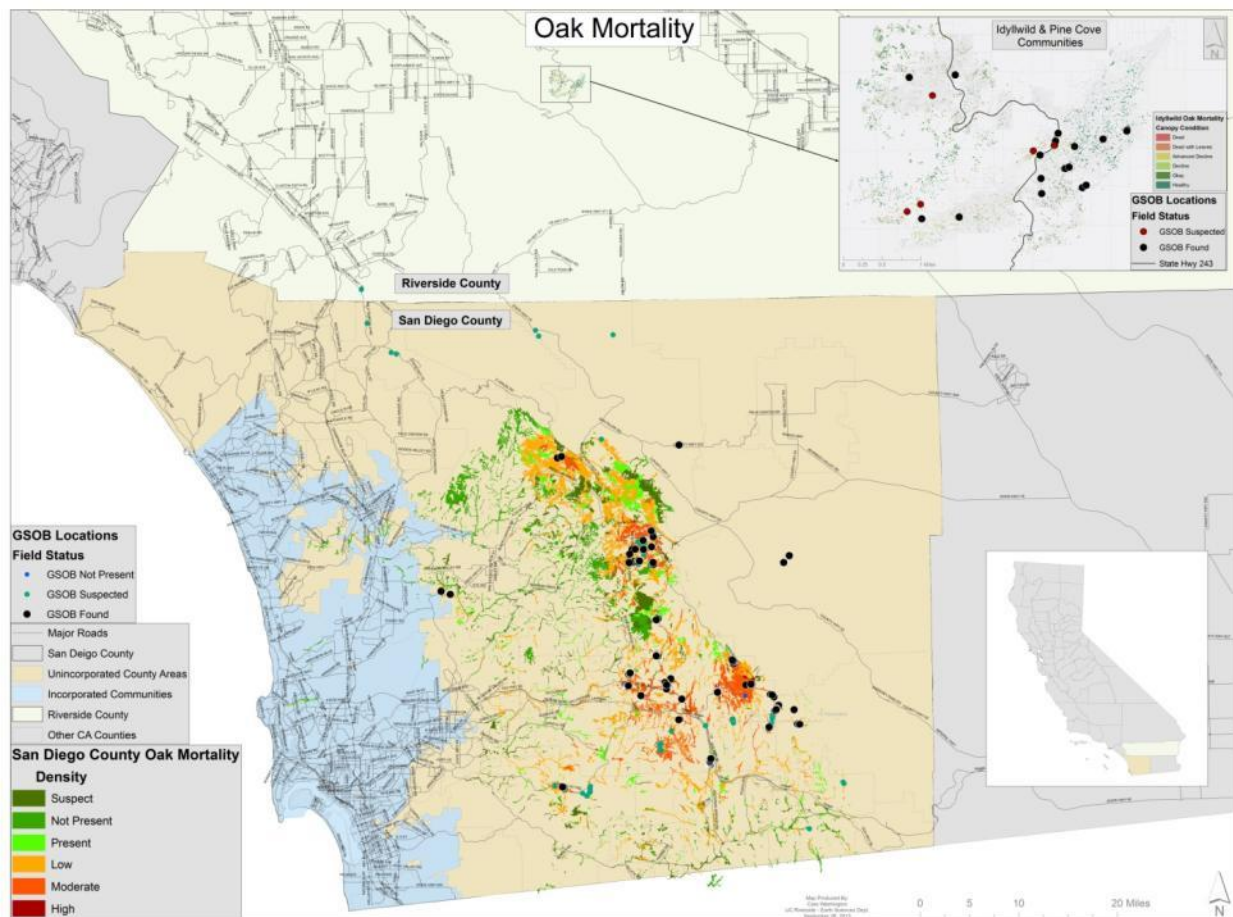
Mapping of GSOB Mortality in San Diego County

A total of 109 study sites covering approximately 2,281 HA have been updated with 2012 aerial imagery data (previous data was 2010).

The updated sites show significant change since 2010:

- 2010 – there were 9,484 total trees affected
- 2012 – 17,107 trees affected
 - 7,623 new trees affected
 - 4,346 of these new trees are in declining state
 - 3245 of these new trees are identified as dead
- Loss of canopy area in the 109 updated plots = 105.9 HA

Dynamic map of GSOB-caused oak mortality at the end of the quarter – dark dots = new mortality



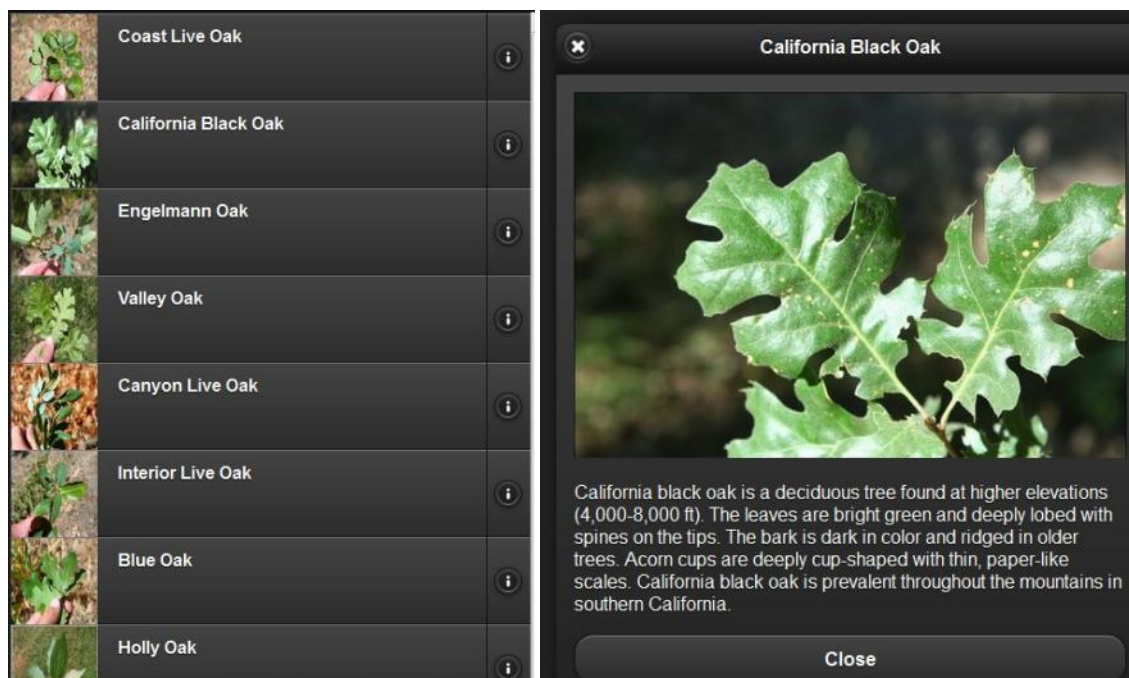
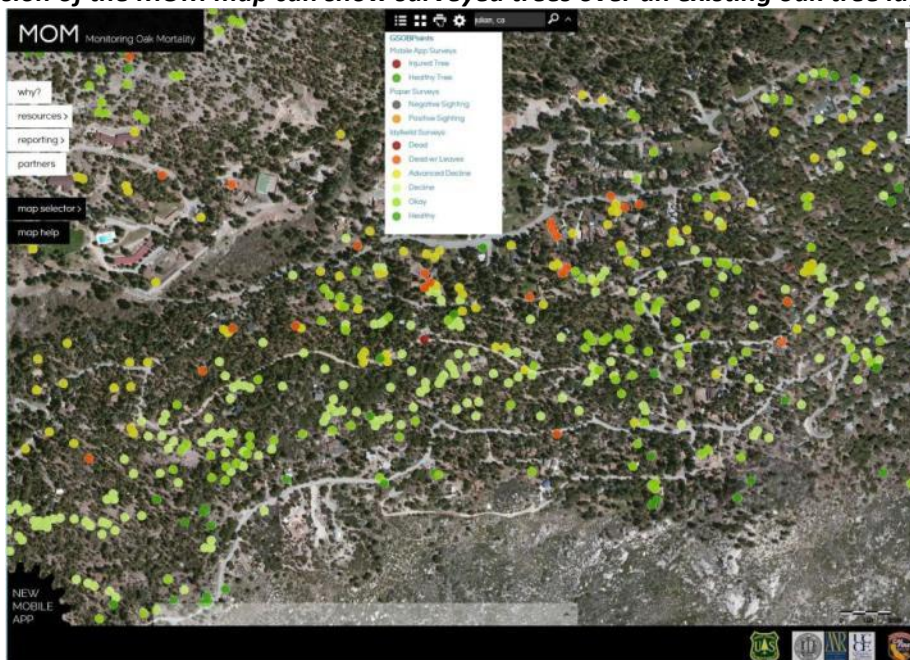
Dendrochronology

We continue to collect tree cross-sections from GSOB killed trees whenever possible in both San Diego and Riverside in order to determine when the tree was attacked by GSOB, how many years it survived the attack, and to look for signs of other pests and pathogens that may have contributed to the decline of the tree. Tree cross-sections are sanded to an extremely fine finish, photographed and analyzed by trained student workers who examine and record data from the magnified photographs.

GSOB Early Warning System

Several new volunteers began to use the Mapping Oak Mortality (MOM) mobile app to conduct tree surveys in San Diego County. We are working on improving the app to streamline data entry process and provide improved tools for handling and analyzing the data. In addition, we are working with app developers at the Water Resources Institute at Cal State San Bernardino to produce a simplified mobile app that can be used by a novice to report an injured tree by sending a photo automatically linked to GPS coordinates.

The latest version of the MOM map can show surveyed trees over an existing oak tree layer



Shared GSOB Database

We have been working with two of our partners in Riverside County, the Mountain Communities Fire Safe Council and Riverside County Fire Department/CAL FIRE Riverside Unit, to develop and implement a shared database of large oaks in the Idyllwild and Pine Cove communities. Inspections of oak trees are typically instigated either by property owner request and/or as a result of our office's false-infrared analysis of aerial imagery to identify stressed trees. Initial tree inspections are normally conducted by citizen scientist EWS volunteers; the results of those inspections are entered into the database by a volunteer. Trees that are confirmed to have GSOB are referred to the appropriate agency to oversee removal. Trees that need additional expertise to determine if they have GSOB are followed up by either by CAL FIRE staff or are referred to our office for follow-up.

Shared GSOB database

GSOB EWS Survey Form

Surveyor Submittal and Effort Data:

ID: 5255 APN: [REDACTED] Survey Date: [REDACTED]

Owner Last Name: [REDACTED] Owner First Name: [REDACTED]

Effort Hours: [REDACTED] Effort Mileage: [REDACTED]

HOUSE NO: [REDACTED] DIR: [REDACTED] STREET: Fern Valley SUFFIX: Rd

County: [REDACTED] Ownership: [REDACTED]

Re-insection Notifications: [REDACTED]

Tree Data:

	Tree #1	Tree #2	Tree #3	Tree #4	Tree #5
Latitude					
Longitude					
Species	QUKE	QUKE	QUKE	QUCH	
DBH	21"	10"	12" - 2 oaks	18"	
Multiple Stems				2	

Add Healthy Tree Data:

Species: [REDACTED] DBH: [REDACTED] Multiple Stems: [REDACTED] Crown Rating: [REDACTED]

Add Injured Tree Data:

Species: [REDACTED] DBH: [REDACTED] Multiple Stems: [REDACTED] Crown Rating: [REDACTED]

Trunk Status:

	Tree #1	Tree #2	Tree #3	Tree #4	Tree #5
Staining/oozing on Bark					
GSOB Emergence Holes					
Woodpecker Damage					
GSOB Larval Galleries					
Inspected Tree Status					Not GS

GSOB Life Stages Observed:

	Tree #1	Tree #2	Tree #3	Tree #4	Tree #5
GSOB Larvae Observed					
GSOB Pupae Observed					
GSOB Adult Observed					

Leaf Status: (*applies to Black Oaks Only)

Leaves Brown: [REDACTED] X

Other Contributing Causes:

Pathogens: [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

Records: 1 of 5255

Demonstration Projects

Pesticide as a Barrier to Adult GSOB Emergence Demonstration (San Diego County)

The study has been completed and the results will be prepared in a separate written report. We had good emergence of adult GSOB from the untreated controls and excavated dead beetles from the bark of treated wood that failed to emerge. We had hoped to conduct ELISA tests on those insects to look for the presence of the pesticide, but don't have the resources or means to conduct such a test. However, the test was still very successful as we do have an excellent comparison of rates of emergence from treated versus untreated samples.

Grinding Demonstration in Idyllwild

We wrapped up data collection for the grinding test of GSOB-infested California black oak. In addition to counting the number of GSOB caught in the traps of each test barrel, we had to sift through the contents of each of the “treatment” barrels to find if there were any beetles that didn’t make it up to the traps. Over 1,000 GSOB adults were “harvested” from the untreated controls with the help of our student workers. The test site has been cleaned up and Kevin Turner will be assisting Dr. Tom Scott on a paper this upcoming quarter documenting the results.

UCR student workers assist Dr. Tom Scott with sifting through one of the grinding “treatments” to look for carcasses of GSOB adults.



186 adult GSOB were collected from just this amount of infested bark!

