

Goldspotted Oak Borer and Oak Mortality

Quarterly Situation Report

July 1 through September 30 2011

General Observations

Fortunately, no new outbreaks of GSOB were discovered through the quarter either in our out of San Diego County although oak mortality continued in existing infestation areas. Several reports of possible GSOB attack were received from LA and Riverside counties, but when field checked proved to be negative for GSOB. Also, the US Forest Service recently granted funds to Cal Fire, Calif. Dept. of Food and Agriculture, and Calif. State Parks to promote using local sources of firewood and to implement a statewide campaign to reduce the movement of invasive insects and diseases on firewood. Some of the work being accomplished by the CA Firewood Taskforce is highlighted in this report.

San Diego GSOB Steering Committee

The Steering Committee met at Rancho Bernardo on August 23rd and received updates on the status of the various GSOB programs/studies, a progress report about the CA Firewood Task (CFTF) Force “camper firewood use” surveys and distribution of CFTF printed materials in San Diego County, and a review of Steering Committee action plan items. Of note is that Valerie Mellano is now the County Director for UC Cooperative Extension in San Diego and will participate with the Steering Committee. Nedra Martinez is preparing to retire in less than a year and her replacement for State Parks on the Steering Committee will be Matt McDonald. The next Steering Committee Meeting is November 8th, 1PM in Rancho Bernardo.



Above: CAL FIRE Assistant Deputy Directors Russ Henley, Tom Lutzenberger and Program Chief Tony Favro observe the San Diego GSOB Steering Committee Meeting held at the Cleveland NF Supervisor’s office in Rancho Bernardo August 23 2011. Their trip from Sacramento to review ARRA grant activities also included a field trip to see the GSOB problem firsthand and our collective response.

Greater San Diego Resource Conservation District – Danielle Campbell

The RCD D3 program has been marking trees for removal in Corte Madera Ranch. There is immense mortality and infestation on the ranch within the oak dominated woodlands. Due to funding restraints we had to narrow our scope of work from 100' along the roads to 50'. The new 50' distance will still be sufficient to make travel on the road safer. The ranch managers have been felling dead oak trees for quite some time and once they became aware of the GSOB problem they canceled their agreement with wood cutters and began stockpiling the oak material. They continue to look for an outlet for their growing stockpile of oak. They are also still working under the guidelines that if a tree has been down for 2 years it is safe to move the wood.

The D3 tree removal program will begin its final round of tree removals at the end of October in the areas of Pine Valley, Corte Madera, Guatay, and a second pass through Descanso. There are just under 800 trees planned for removal during this final phase.

As our preliminary visits have been wrapping up and we move into the removal phase we continue to witness trees that are full of leaves one month and then brown and dead a few months later. Reports from homeowners continue on the trial of various pesticide treatments. However, we find that many trees that have been "treated" are now in severe decline and have been added to our removal inventory. During field visits in Pine Valley there were areas where we observed prolonged infestation however, we observed that there are many more areas than Descanso that appeared to be in a very early stage of infestation.

University of California ARRA Grant Activities – Tom Scott, Brett Goforth, Cara Washington, Kevin Turner

Dating outbreaks by Dendrochronology

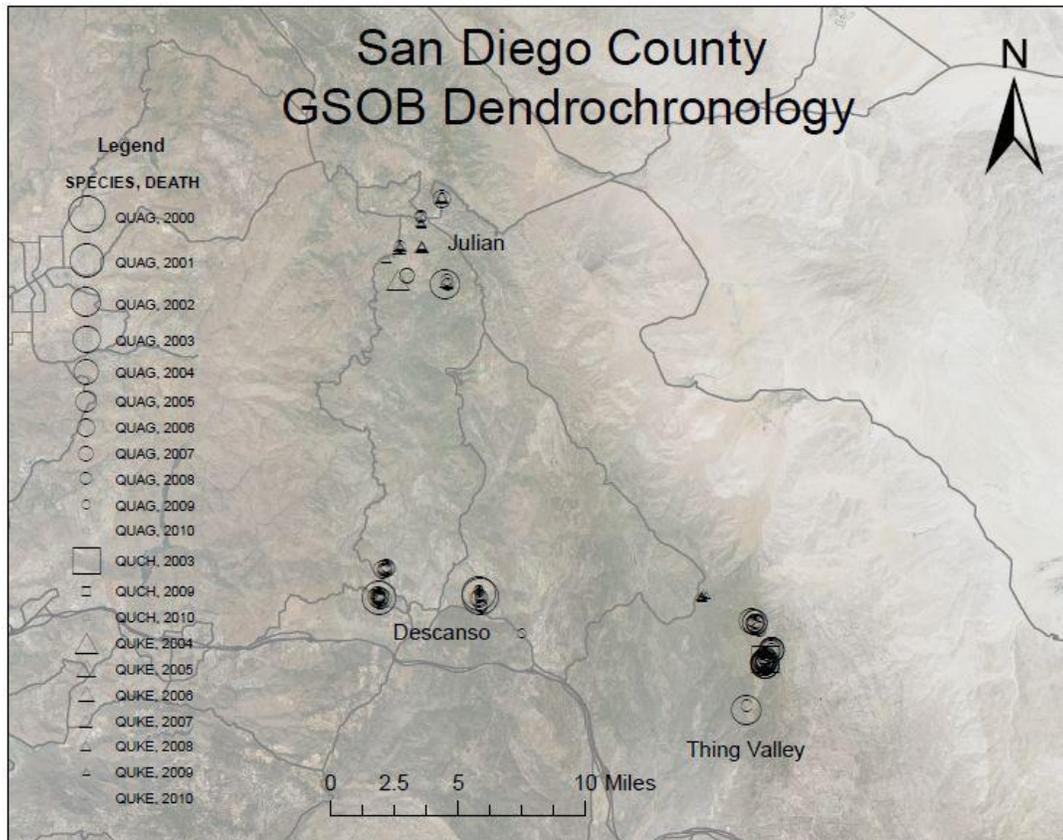
Progress of work:

A total of 2,279 wood samples have been collected from stem cross-sections of oak trees among 38 GSOB infestation localities in San Diego County. To date, 753 wood samples from 367 trees have been prepared for analysis by sanding the cross-section to a flat reflective surface. A high optical-resolution desktop scanner has been used to scan the sanded surfaces, producing 1,590 images at 1,200 dpi resolution, which show tree growth rings and characteristic wounds caused by GSOB in microscopic detail. The scanned images are saved in the bitmap raster format, with individual images having file sizes from 200 mb to 800 mb (depending upon the size of the wood sample). A total of 699 gb of scanned image data have been generated and archived on a 3 tb hard drive. A volunteer (Todd Rutherford) with professional experience in videography has filmed our lab workflow of sanding, scanning, and tree ring analyses, in order to compile a brief interpretive digital video of how

dendrochronology is being used to date the outbreaks of GSOB. A total of 4 student assistants and one specialist are working to process the inventory of collected wood samples. Three desktop computers in the lab have been dedicated to the digital measurement of tree rings with 100th of millimeter precision using a dendrochronology software program called CDendro (version 7.4, March 31, 2011 release, Cybis Elektronik & Data AB, Sweden). Two microscope workstations provide live digital camera views of wood samples for comparison to the scanned images. A third wood sample storage facility was set up at the UC Riverside Agricultural Experiment Station to accommodate archiving of the analyzed wood samples in separate containment from the quarantined unprocessed wood samples.

Observations of interest:

The annual growth rings of 137 wood samples have been digitally measured using CDendro, and 223 wood samples have been aged using tree-ring counts by the microscope work stations. To date, the earliest detected year of oak tree death from GSOB attack (recorded by scars in tree rings) has been dated to the year 2000. A map of the field location for each dated wood sample is being compiled, which identifies the death year dated by dendrochronology for comparison to aerial photo interpretation and mapping tasks (see map below) To this end, tree-rings provide ground control for aerial photo based surveys used to spatially reconstruct the timing of GSOB attack, and patterns of year-by-year spread of the GSOB infestation.



Sequential Aerial-Photoimagery

This quarter we completed reviewing, analyzing, and correcting previous oak woodland vegetation map to account for difference in woodland identification. For all eight large-scale plots completed or nearing completion, average & median year of tree death, average & median year of 1st indication of canopy decline, and average & median year of tree entering irreparable decline preceding tree death have been recorded for all individuals within each sample.

25-hectare sub plots of Samataguma Ranch, Oak Grove, and Santa Ysabel large-scale plot locations have been created to more closely relate to 10-35 hectare study sites noting average & median year of tree death, average & median year of 1st indication of canopy decline, and average & median year of tree entering irreparable decline preceding tree death.

Small plot mapping continues with 63 small woodland plot locations throughout central San Diego County that range in size from 10-25 hectares.

We continue to collect data to analyze the contribution of soil, slope and other physical characteristics to GSOB-related oak mortality and morbidity. Data on the following variables have been collected for eight out of fifteen large plot locations: slope, aspect, elevation, precipitation, temperature, soil type, soil infiltration rates, depth to bedrock and parent material. This information continues to be collected and analyzed to create a predictive model of areas or conditions that may encourage GSOB infestation.

GSOB-Supporting Grant Applications

We prepared and submitted a Western States Competitive Grant to continue funding after the ARRA grant is expended for GSOB outreach and education efforts including maintaining the www.gsob.org website. In addition, the GSOB Early Warning System “citizen scientist” program will also receive funding to enhance and maintain its effectiveness for two additional years. A total of just under \$300,000 of federal funds were requested and will be matched through, in-kind EWS volunteer hours, non-recoverable costs borne by UC and other sources.

We also prepared and submitted a Renewable Resources Extension Act (RREA) Statewide Special Program grant application. The purpose of the grant is to support a demonstration of oak restoration planning and restoration implementation following an insect outbreak (GSOB in this case). A series of webinars would be conducted and web page/resource enhancements made relating to oak restoration at www.gsob.org if we receive the grant for approximately \$8,700.

- **Activities in San Bernardino County.** Presented a GSOB update to the San Bernardino County Mountain Area Safety Taskforce (MAST) Multi Agency Command (MAC) group on September 14th. Delivered GSOB/Don't Move Firewood posters and other informational material to San Bernardino County MAST, SB County Parks and Recreation Department and Cal Fire.
- **Activities with Los Angeles County.** Coordinated with LA County Forestry Chief John Todd to have LA County Foresters make field inspections of suspected GSOB reports in GSOB. Fortunately all of these reports proved to be negative. Met with Tom Scott and the City of San Dimas arborist to determine that the decline in some oak street trees in the city was not attributable to GSOB.
- **Activities with Riverside County.** Coordinated with Deputy Agricultural Commissioner Bill Oesterlein for the dissemination of GSOB/Don't Move Firewood posters and other materials within Riverside County. We also conducted a joint inspection with Riverside County Agricultural Commissioner's office in a neighborhood near Hemet. Property owners were concerned about recent oak tree mortality occurring in street and landscape trees. Although thankfully no GSOB were found, the joint inspection was beneficial in that it resulted in additional County Ag personnel being given hands-on training for identifying GSOB and it also educated some local citizenry about GSOB prevention and identification.



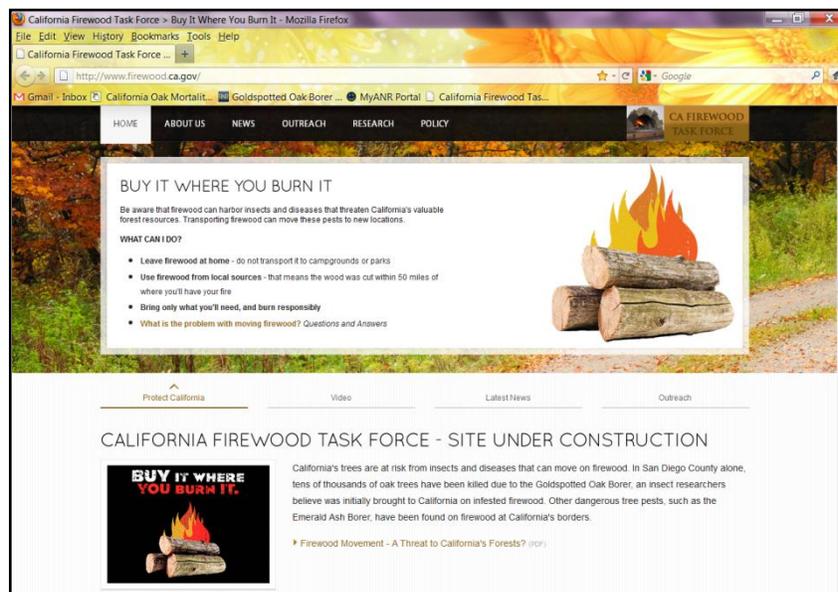
Left: Dr. Tom Scott and Riverside County Ag Inspector Don Domenigoni exam declining oak trees with two homeowners in a neighborhood just east of Hemet. Although no GSOB were found, a host of other insects, pathogens and poor cultural practices are causing serious tree health issues in the neighborhood.

Pesticide as a Barrier and Particle Size Trials Updates

The complete reports on these two trials should be available by the end of next quarter. Several topically applied pesticides in the Barrier trial seemed to be effective in preventing the emergence of adult GSOB from infested bolts (wood rounds). Preliminary results from the Particle trial showed favorable results (killing GSOB in infested logs) at the 3" minus size class.

California Firewood Task Force

- Firewood Task Force Development:** Katie Palmieri and Janice Alexander have been providing leadership and support for the newly created CA Firewood Task Force (FWTF). Janice, Katie, and Sue Vezeau (Yosemite National Park), developed a survey on camper firewood attitudes and behaviors to accompany the summer 2011 outreach campaign. Katie has participated in the Continental Dialogue Firewood Outreach Coordinating Initiative conference calls and is the representative for the CA Firewood Task Force. Katie, in cooperation with Bob Rynearson (CFPC Chairperson) and Don Owen (CA Firewood Task Force Chairperson) developed a CFPC firewood letter and resolution and mailed to key contacts and potential collaborators in impacted industries.
- Outreach Campaign:** Katie, Janice, and Matthew Bokach (USDA-Forest Service) developed California's first firewood outreach campaign. The short-term campaign was launched in the summer of 2011. Worked with The Nature Conservancy and Oregon Invasive Species Council on modifying firewood posters and other outreach materials for distribution in California designed a GSOB-specific poster for Southern California. Other accomplishments include development of the www.firewood.ca.gov website, the camper firewood survey and a press release.



Don't Move Firewood Camper Surveys and Hand-out Materials

California Firewood Task Force (CFTF) "Don't Move Firewood" Outreach Surveys are being distributed at private campgrounds from North county to East county by GSOB Task force member Martin (a.k.a. Nicio) Aguilera (formerly of the Resource Conservation District of San Diego and current Coordinator for the Greater Julian Firesafe Council). Nicio gets a chance to interact with the public while soliciting participation in the survey. Many campers are from out of state, mostly from Arizona and some from Mexico, but a majority are from San Diego. Many are retired and others unemployed. Despite our newspaper and media outreach most campers do not have any knowledge of GSOB or the peril of moving firewood. Thus Nicio's work includes a lot of time educating an interested audience. Feedback includes distrust of Government but concern to save our trees and not be part of the problem. Giveaways such as "Don't Move Firewood" Frisbees and invasive insects playing cards are included in the effort. GSOB brochures that were already in existence really help to show the problem as well as pointing out trees right in the campgrounds that are dead and dying.

Early Warning System Update (Citizen Scientist Program)

Kathie Carter came aboard as the new GSOB Early Warning System (EWS) Coordinator in August. She has worked at UC Riverside for over 24 years as a researcher and a webmaster on several websites. She also has some knowledge of GIS.

The GSOB Early Warning web site is now up and running at UCR as is a list server to manage the large group emails sent to our EWS volunteers.



We are in the process of creating a Smartphone application that can be uploaded to our Early Warning System web site of newly located GSOB sites using GIS coordinates. We will be able to filter the results and make an interactive map that can be constantly updated. It is my goal to get this network up and running with a user friendly interface and keep the web site updated with the latest news and locations of the GSOB in the very near future.

I plan on continuing the educational outreach portion of the program and attracting news media coverage to help stop the spread of this pest.

San Diego County Parks – District 3 Report

GSOB Situation Report - July 1 thru September 30, 2011				
Unit name	Location of following	New GSOB trees	# of Trees dropped due to GSOB	Other GSOB concerns
Barnett Ranch				
	Mid central extending east and lower west extending to the middle.			20% mortality. Most medium branches have fallen off Oak trees. Bark chunks falling off, crown thinning. Some trees are thinly leafed. Woodpecker damage. Hard to see staining due to darkened bark from 2003 fire.
Dos Picos				
	Campground & Area 2	0	0	
Luelf Pond				
	Northern Section from east side to middle			10% Mortality rate to date. Crown thinning, bark falling off in chunks, woodpecker damage to trunks, curled-exposed branches with no leaves. This riparian zone is mostly live oaks. Harder to rate staining due to darkened bark from 2003 fire.
Ramona Grasslands				
	Gildred Ranch			10 to 15% mortality in oak riparian zones. Still need to survey north end of Gildred Ranch. Burned in 2007.
	Eagle-Davis Ranch			Still need to survey north side of Eagle-Davis parcel
	Oak Country 1 & 2 (a Ramona Grassland parcel)			10-15% mortality. Some live oaks have fallen over with roots cracked at the trunk's base (they died while fully leaved) Normally with GSOB deaths we see no leaves on the trees once the tree dies.
Santa Ysabel East				
Oak Alley	On public Coast to Crest Trail in first oak canopy along Santa Ysabel Creek and up hillside after 2nd creek crossing to Kanaka Loop			No noticeable crown thinning yet-but major limb die-back and different color (grey-green). Mostly Coast Live Oaks in this area. Severe damage after last winter snow. GSOB seems more prevalent along creeks, drainages and roads. 20% infestation

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Unit name	Location of following	New GSOB trees	# of Trees dropped due to GSOB	Other GSOB concerns
Santa Ysabel East				
Horseshoe Loop to Triangle	Gate on Hwy 78 in the San Diego River Drainage up along Coast to Crest public trail to picnic table at Triangle			Occasional whole tree death and noticeable canopy color change. Same as in Oak Alley. Infestation in Black Oaks in this area seems higher or perhaps more noticeable. Cedar Fire went through this area.
North Road	Green gate at 2nd creek crossing on closed North road along Santa Ysabel Creek and Boundary fence with reservation.			This area has some very large old growth Canyon Oaks. They all have evidence of infestation. Large limb drop very common, as is staining on trunks. infestation very high in this area. 75-100%
Simon Preserve				
	East side			Oak trees in this area appear to be up to 200 years old. This area burned in 2007. There is present a 10-20% mortality. Remaining trees have crown thinning, bark falling off in chunks (Due to canker?), dead branches and medium size branches falling off trees.
William Heise Park				
	Picnic Area # 1	3	2	Many live/black oaks with thinning crowns.
	Area # 1	3		Many live/black oaks with thinning crowns.
	Loop 2 North	2		Many live/black oaks with thinning crowns.
	Loop 2 South	2		Many live/black oaks with thinning crowns.
	Tent Area	2		Many live/black oaks with thinning crowns.
	Cabin Loop	2		Many live/black oaks with thinning crowns.
	Ranger residence # 1	0		Many live/black oaks with thinning crowns.
	Ranger residence # 2	5	13	Many live/black oaks with thinning crowns. Most of mortality has occurred in the last month.

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Goldspotted Oak Borer Education and Outreach Program– Jan Gonzales

Website:

- Expanded and re-organized GSOB website. Additions include sections on Diagnosis and Management, Recovery topics, Contact information, Quick Links, Social Media links and Email subscribe application.
- Continued monitoring online survey for Public Reporting of Suspected GSOB Symptoms; forwarded reports in new locations to researchers for follow-up.
- GSOB website use data.

	Quarter (Jul-Sep2011)	Cumulative (Sep09-Sep11)
Hits	66,462	389,275
Page Views	24,507	122,823

Webinar:

- Organized and broadcast GSOB webinar on September 15, 2011. Speakers were Julie Lydick, USFS; Tom Coleman, USFS FHP; Tom Scott, UCCE/UCR; and Kevin Turner, UCR. Attendance and survey results indicate this was a successful event with 98% reporting they are interested in future trainings. A full page summary is attached.

July through September 2011 Collaborative Tools Calendar

9/15/2011	GSOB Webinar	Jan Gonzales	Add to Discussion	Edit	Delete
9/14/2011	San Bernardino MAST MAC	Kevin Turner	Add to Discussion	Edit	Delete
8/3/2011	GSOB talk at PAPA Seminar	Kim Camilli	Add to Discussion	Edit	Delete
7/19/2011	San Diego County Parks oak insects/disease training	Kevin Turner	Add to Discussion	Edit	Delete
7/9/2011 - 7/10/2011	Insect Festival	Lorin Lima	Add to Discussion	Edit	Delete



Goldspotted Oak Borer Webinar

Summary Report



Overview

Objective: To share information on the Goldspotted Oak Borer, its impacts, risks, ongoing research and management options.

Date: September 15, 2011

Time: 10:00 - 11:00 am PST

Target Audience: County Supervisors and Agriculture Commissioners; Public Land Managers and Native Tribes; however, event open to anyone interested.

Attendance: 91

Highlights:

- Likely to use information - 69%
- Webinar changed views about firewood - 60%
- Potential extended reach - 21,100 people
- Webinar rating: 70% Excellent, 30% Good
- Interested in future GSOB events - 98%

Special Thanks to our Webinar Speakers



Introduction - Julie Lydick
Asst. Dir. of State & Private Forestry
USDA Forest Service, Region 5



GSOB: History, Impact and Management - Tom Coleman
Entomologist, USDA Forest Service,
Forest Health Protection

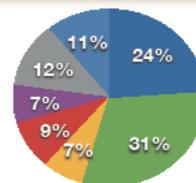


Risks to Oaks and Communities - Tom Scott
Natural Resource Specialist
University of California Cooperative
Extension at UC, Riverside



Responding to the GSOB Threat - Kevin Turner
GSOB Program Coordinator
University of California, Riverside

Audience Distribution



- Co. Supervisor and Ag Cmsr. Off.
- Public Land Managers
- Native Tribes
- Arborists
- Private Businesses
- Education and Outreach
- General Public

Results for GSOB Webinar Pre and Post Poll Questions

Pre-Webinar Poll Questions	
Have had previous GSOB training?	
Yes	44%
No	56%
In which County geographic area do you primarily work?	
San Diego County	29%
Riverside, San Bernardino, Orange, Los Angeles or Ventura County	24%
Other California County	34%
Statewide	10%
Do not work in California	2%
How many clients do you work with or contact a year?	
More than 1,000 people	17%
500-999 people	10%
250-499 people	12%
100-249 people	25%
50-99 people	8%
10-49 people	17%
Less than 10 people	8%
None	4%
Percent of time spent working on oak tree related issues?	
None at all	6%
Between 0 and 25%	76%
Between 25% - 50%	8%
Between 51% - 75%	0%
Between 76% - 99%	3%
100% of the time	6%

Post-Webinar Poll Questions	
How would you rate this webcast?	
Excellent	70%
Good	30%
Fair	0%
Poor	0%
How likely are you to utilize what you have learned at this webinar?	
Very likely	69%
Somewhat likely	31%
Not likely	0%
Not at all	0%
Has this webinar changed your views about firewood movement or your future firewood practices?	
Yes	60%
No	40%
Interested in attending future events on GSOB, oak woodlands &/or firewood movement?	
Yes	98%
No	2%
What type of events to you prefer?	
Small group presentation	2%
Full day workshops	3%
Larger conference event	3%
Field day training	39%
Webinar	53%
Other	0%
None of the above	0%

Photos below: How can you safely store small quantities GSOB-infested wood? This demonstration shows the use of aluminum window screen and heavy mil (10mil) UV-resistant plastic. The upper left photo is whole rounds in window screen; upper right is split wood in window screen; bottom left is split wood covered by tarp; bottom right is whole rounds covered by tarp (for purposes of this demo, both tarped piles were also covered by screen as a way to catch any adults that might emerge and escape from the tarp.) All are in full sun.



Notes: There may be benefit in splitting the wood prior to tarping or screening as it may speed wood drying and kill GSOB in the wood sooner. Screen is more costly and difficult to work with than tarp, but if you create tight seams and no holes or tears occur, it is a secure way to store wood until after adult GSOB emerge and eventually die of starvation. With care it can be reused. A heavy-duty office stapler was used to secure the folded screen seams. Plastic tarp is subject to tearing if there are tight bends over sharp edges and even the supposedly UV resistant heavy tarp we used deteriorated and started falling apart after a few months in hot sun, making cleanup a mess. Both materials/methods are manageable for smaller quantities of wood, but large quantities (chords+) become more difficult to cover and maintain securely.