

CALIFORNIA INVASIVE SPECIES ADVISORY COMMITTEE (CISAC) MEETING

Invasive Shot Hole Borers Sub-Committee - Research

Thursday, March 21,
2019 2:00pm – 4:00pm
Meeting Minutes

Meeting Action Items

- Next Meeting: Wednesday, April 3rd from 2pm to 4pm

Short Term

- All review SANDAG Document prior to the next meeting.
- David Pegos will send out the Link SANDAG Document again with a reminder to review prior to next research subcommittee meeting.
- Sheri Smith to reach out to Larry Swan regarding research on BioChar.
- Identify social scientist in California that are looking at the behavior of moving wood from South to north.
 - Shannon Lynch will reach out to Patricia Winter.
 - John Kabashima will reach out to Amanda Crump.
 - David Pegos will reach out to John Boland.
- Tabled to Tree Pests Working Group
 - Develop a mechanism for collaboration between researchers and county staff.
- Figuring out how small the chips needs to be to remove the bug completely.

Long Term

- Pluralize Invasive Shot Hole Borer (ISHB) to Invasive Shot Hole Borers.
- UCI Study of already infested trees. Needs to be a follow-up that includes non-infested trees.
- Research into Management strategies other than tree removal.
- Restoration, which species are resistant and should be planted.
- Identify someone to continue McPherson's work on economic impacts 5-10 years showing impacts of 50% mortality rate and 80% mortality rate.

Meeting Proceedings

Background

David Pegos of CDFA presented background for the convening of the subcommittee. In January of 2018 the CISAC convened a statewide summit. Out of the summit came suggestions which were incorporated into AB 2470, signed by the governor in 2018. The bill allocated \$5 million for a coordinated statewide effort against invasive shot hole borers (ISHBs). The funds are ready to be disbursed and these subcommittees are tasked with advising how the funds should be allocated and helping develop the RFPs. Each sub-committee will meet four times at two-week intervals, while taking actions between meetings to make progress. The consensus of the subcommittees will be compiled by Shannon Lynch into a single report document. Simultaneously the subcommittees will utilize boilerplate RFP language from CDFA and Cal Fire to begin developing the RFPs. Mr. Pegos noted that the prioritization of this subcommittee may also help inform the farm bill suggestion process.

OPENING REMARKS and REVIEW OF THE SUB-COMMITTEE MISSION

Subcommittee Co-chair Shannon Lynch convened the meeting at 2:04 PM. Dr. Stacy Hishinuma reviewed the subcommittee mission. This funding will be focused on short term goals. Once we have built a list of priorities we will rank them and then propose a budget to meet those priorities.

- Between now and 2nd meeting the committee will develop list of research topics

- Between 2nd and 3rd meeting the committee will do ranking of the research topics
- At 3rd meeting the committee will discuss the ranking results of prioritizing
- At the final meeting the committee will review and begin drafting write-up

(5) SUB-COMMITTEE BUSINESS/DISCUSSIONS

SANDAG Overview

Mrs. Lynch gave a brief description of the SANDAG Document that she developed in collaboration with San Diego County. The document outlines a series of action items that could be implemented in the strategy. These include creating a leadership oversight coalition and distribution and density surveys; as well as short term management, outreach, and research leading to long term management. The SANDAG document identifies both opportunities and obstacles.

Discussion

Mrs. Lynch lead a brainstorm around research needs. During the discussion current research was brought up and discussed as well as some key people that may need to be involved.

- Identify social scientists in California that are looking at the behavior of moving wood from south to north.
- Resistance
 - There was no consensus on whether Genetic Resistance was needed.
 - Jason Stajich of UC Riverside is doing research on the strains of the fungus.
 - Mrs. Lynch is researching tree “immunity” via host microbial communities.
- Deterrents
 - Richard Stouthamer is working on a deterrent. Preliminary work shows it is effective but not over large distances or over long periods of time (currently lasts about 2 weeks).
- More accurate to pluralize ISHB
 - Examination of the differences of the two.
 - They seem to be able to switch and consume each other’s fusarium.
- Climatic Controls
 - Shannon Lynch is doing this on a broad scale.
- Water Potential studies and nutrients that might affect health of the plants
 - UCI Study of already infested trees. Needs to be a follow-up that includes non-infested trees.
 - Shelley Bennett of UC Santa Barbara is doing research on high nutrient content that is beneficial for the fungus and the beetles.
 - Shelley Bennett did research on water potential and found no effects but could replicate study if needed.
- Restoration
 - Would be useful to have a list of which species are resistant and should be planted.
- Shannon Lynch is Modeling Risk of ISHB at particular sites.
- John Boland, not present, has a soft density wood hypothesis that may be useful.
- Rapid Identification tools
 - Eskalen labs has been working on early detection tools that identify fungi and pieces of the beetle from wood pieces. How can we apply these early detection tools for the public?
- Shannon Lynch is monitoring rate of spread. She has 260 Plots in the 3 counties started in 2017 and is monitoring it overtime.
 - Research what factors increase rate of spread.
 - Creating a model to predict which areas are most vulnerable.

- Preliminary analysis shows that there is a stronger likelihood to be susceptible based on shared evolutionary history and abundance.

There was some discussion regarding the importance of disseminating data more rapidly to those tasked with responding within the counties. Initially a working group of Shannon Lynch and Rosi Dagit were going to discuss this; however, it was decided instead to table it to the Tree Pests Working Group which meets quarterly. During this discussion some items were highlighted:

- The need for more outreach and education materials.
- Several reports will be published within next couple weeks include data.
 - Natural Communities Coalition of Orange County report will be very helpful.
 - ISHB interactive map could be updated to include new data.
- Dr. Nobua-Behrmann has survey park data that may be helpful to Mrs. Lynch.
- Research on Chipping
 - Figuring out how small the chips needs to be to remove the bug completely.
- Mrs. Lynch has data on number of holes versus health of tree.
- Many ISHBs attack the tree they were born on. High mortality rate when they are traveling. Warm weather (above 68 degrees) and dry trees lead migrations.
- Old Study of Tea SHB. Flight range of beetle is about an hour. Average 38 feet, max 8 miles per generation.
- Continuing to understand the host range and any potential new hosts, specifically agricultural hosts.
 - Current research on Almond trees.
 - Pecan trees have been heavily damaged in South Africa.
 - Tom Coleman did no choice tests on logs.
- Long term Action Item: Economic Impacts 5-10 years showing impacts of 50% mortality rate and 80% mortality rate by McPherson. Look for someone to continue that work.
- Lower priority research lure replacements.
 - Current lures are effective for a month which can be utilized during key spreading time.
- Biocontrol fungi that inhibit the growth the fusarium in-vitro, greenhouse and field setting.
 - Need to come up with a delivery method.
- Healthy Citrus Trees and Olive trees are showing resistance. Unhealthy trees are still at risk.
- Look at interactions with other fungal pathogens with this pest disease complex.

Public Comment

- Gretchen Heimlich has research capacity.
- Have we looked at hybridization of resistant trees with non-resistant? London Planes and Western Sycamore.
- Matthew Abbott asked if Stone Fruit is a potential host. Low priority item to confirm resistance of Stone Fruit.
- Monika Sowinska is curious if painting stumps be as effective as grinding.
- Shelley Bennett asked how will beetles affect reforestation efforts?
 - Mrs. Lynch doing research on endophytes on restoration sites.
- Sheri Smith is looking forward to seeing the research list.

Adjourn

Dr. Stacy Hishinuma reviewed the next steps and action items. Shannon Lynch adjourned the meeting at 4:16pm. The next meeting will be Wednesday, April 3rd from 2pm to 4pm.

Meeting Participants

First	Last	Affiliation
Dr. Stacy (co-chair)	Hishinuma	UC Davis
Shannon (co-chair)	Lynch	UC Santa Cruz
Matthew	Abbott	USDA
Dorothy	Abeyta	Davey Tree Company
Laura	Arellano	Imperial County
Shelley	Bennett	UC Santa Barbara
Mark	Berninger	City of San Diego
John	Boland	Boland Ecological Services
Gregg	Bratcher	CAL FIRE
Kyle	Burke	California Department of Food and Agriculture (CDFA)
Corin	Choppin	Consensus and Collaboration Program (notetaker)
Kim	Corella	CAL FIRE
Rosi	Dagit	RCD of the Santa Monica Mountains
Akif	Eskalen	Eskalen Labs, UC Davis
Mel	Graham	Santa Barbara Ag Commission
Nathan	Gregory	Irvine Ranch Conservancy
Donald	Grosman	Arbor Jet
Katie	Harrell	Board of Forestry
Andrea	Hefty	U.S. Forest Service
Gretchen	Heimlich	Disneyland
Stacy	Hishinuma	U.S. Forest Service
Ann	Hope	
Anne	Jarque	City of San Diego
John	Kabashima	UC ANR Emeritus
Kalee	Koeslag	Irvine Ranch Conservancy
Danielle	Lefer	State Parks
Dario	Lombardo	County of San Diego Parks and Recreation
Martin	MacKenzie	U.S. Forest Service
Beatriz	Nobua-Behrmann	UC ANR
Pat	Nolan	San Diego County Agricultural Commissioner
Mike	Parker	Alliance Land Care
Bronti	Patterson	State Parks
David	Pegos	CDFA (Convener and facilitator)
Mark	Porter	Arborist
Madeleine	Rauhe	Disneyland
Joe	Scheele	U.S. Customs and Border Protection
Michael School	Scholl	CDFA
Matt	Slattengren	Contra Costa County Ag Commission
Tom	Smith	CAL FIRE
Sheri	Smith	U.S. Forest Service
Monika	Sowinska	U.S. Forest Service
Jason	Stajich	UC Riverside
Richard	Stouthamer	UC Riverside
Jim	Suero	State Parks
Kevin	Turner	CAL FIRE
Jerrold	Turney	Los Angeles County Ag Commission
Mayra	Valdez	Mexico
Sophia	Yun	Orange County Public Works