Oregon State Beekeepers Association 2021 Fall Conference



Florence Events Center Florence, Oregon & Online

October 22-24, 2021

Contents, Advertisers & Exhibitors

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President's Welcome

It is a great pleasure to welcome all of our beekeepers, vendors, and presenters to our Oregon State Beekeepers Association Centennial Conference. Over the next few days, we have a wonderful opportunity to share knowledge, experience, and well-deserved camaraderie, and to raise funds for honey bee research. This work that we do together is so very important. The honey bee is a magnificent creature that we shepherd. It is this very relationship that feeds the world. Beekeeping is incredibly hard work, fraught with innumerable risks, and therefore every beekeeper is a superhero. It has often been said that, if your path is more difficult, it is because your calling is higher. This is so true of beekeeping and beekeepers. Thank you all for being who you are and doing what you do. Together we can forge the path ahead when it seems dark and difficult by supporting research and sharing knowledge. Food is never going to go out of style, so there will always be a need for our heroic endeavors. With a little luck and some hard work, the OSBA will be around for another one hundred years. It is truly a great pleasure to be a part of such an amazing group. Thank you all for coming and doing what you do. We couldn't do it without you.

John

Oregon State Beekeepers	Association Presidents
--------------------------------	-------------------------------

1921–1922	A.J. Sanford	1947	R.L. Sanford	1979	Jack Rowland
1923	K.D. Raker	1948–1949	G.W. Nichols	1980	Gene Garner
1924	J. Skovbo	1950	Jake Bennett	1981–1982	Paul Heins
1925	C.C. Harris	1951	J.O. Kane	1983–1984	George Hansen
1926	W.G. Rodda	1952–1953	W.W. Foster	1985–1986	Bob Arnold
1927	M.M. Mead	1954–1955	J.W. Wright	1986–1987	George Hansen
1928	J.D. Harrah	1956–1957	Herman Larsen	1988–1992	Marge Ehry
1929	B.L. Ferguson	1958	H.A. Scullen	1993–1994	John Mespelt
1930	W.G. Rodda	1959–1960	Delmar Smith	1995–1996	George Hansen
1931–1932	S.D. Williams	1961–1964	Rex Bunnage	1997–1999	Torey Johnson
1933	J. Skovbo	1965–1966	Raymond Sager	2000–2002	Ray Varner
1934	A.J. Sanford	1968–1969	Walter Vail	2003–2006	Kenny Williams
1935	G.W. Nichols	1970–1971	Wesley Kester	2007–2009	Chuck Sowers
1936–1937	Lewis M. White	1972	Donald Grigg	2010–2012	Jan Lohman
1938	A.J. Sanford	1973–1974	LaVerne Boylan	2013–2015	Paul Andersen
1930–1941	W.D. Haskell	1975–1976	Alan Ehry	2016–2018	Harry Vanderpool
1942–1946	H.J. Moulton	1977–1978	Thomas Thayer	2019–	John Jacob

Those who have served as Oregon State Beekeepers Association president are named here. Yet, as we all know, they have not acted alone over these past 100 years. Let this listing serve as a tribute to the many individuals and commitment that have evolved OSBA into the organization we know today. May we now take time to reflect on, not only how best to continue the organization's work in education and reseach, but also what may be of value in a world that is changing for all of us, including our beautiful pollinators.





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Conference Overview

The 2021 Fall Conference of the Oregon State Beekeepers Association takes place in Florence, Oregon, and online *via Zoom* this year—our first centennial and our first hybrid event! Recorded sessions will remain available to registrants until December 31, 2021.

Meeting in Person: Throughout our time together at the Florence Events Center, we request that all participants abide by state and county mandates and the rules of the Center in guidance regarding COVID-19. This includes the face covering mandate. We will be using the Center's infrared technology for measuring temperature at the door.

Meeting Online: Attendees meeting by way of the Zoom platform during the event will receive an email prior to the start of the conference with a link. Simply click on the link to be transported to an online "room" where the conference takes place. Additional instructions are at: **orsba.org/zoom-101**, and more can be found on the Zoom website (**www.zoom.us**). Moderators are **Rick Olson** and **Paul Stromberg** (page 13).

This program includes the **Tentative Agenda** for the conference along with scheduled events and information about our **Presentations and Presenters**, who bring us research and updates from a rich background of experience and gained perspective to add to both our practice and our appreciation of the of the complexities of the life of the honey bee and other pollinators. In addition, we have opportunities to participate in ways that include:

Breaks | Exhibitors and Advertisers

Take advantage of opportunities each day to visit with one another during breaks, meet with our exhibitors, and check out the offerings of our advertisers, as viewed in these pages.

Honey Show

Enter and view the entries of others in this year's Honey Show, which features our best honey, wax, photography, and gift baskets—and cookies! **Marjie Ehry** (page 9) is judging the Honey Show, with **Bonnie King** and **Susan Rauchfuss** as our Honey Stewards. Conference attendees will be judging photograph entries, Bee theme—"Make us laugh!"

❖ Benefit Auction and Online Silent Auction

Donate to and bid during one or both of our two actions; all proceeds go to research. The **OSU Honey Bee Lab** is managing the Benefit Auction, to follow this year's Banquet. **Auctioneers** are to be named. The Online Silent Auction is managed by **Charlie Vanden Heuvel** and the **OSU Honey Bee Lab**. Lab members are on site to assist with donations for both auctions and with potential technology issues. The Online Silent Auction can be accessed at: **www.biddingforgood.com/orbeekeepersassoc** (by computer) | **bforg.com/orbeekeepersassoc** (by mobile device) and ends on Saturday, October 23, at 10 PM.

♦ OSU Honey Bee Lab

Visit with members of the OSU Honey Bee Lab, who will share updates and ongoing research; drop samples off at their table for pest and disease analyses.

General Membership Meeting

Attend our annual General Membership Meeting, to be held on Saturday, October 23, at 4:30 PM. We are reviewing the past year and holding elections for our 2022 officers and regional representatives. All OSBA members, registered or not, are invited to participate and vote.

Luncheons and Banquet

Enjoy presentations during our traditional Luncheons on Saturday and Sunday, and the Banquet on Saturday evening. **Note**: Tickets for these events are separate from registration.

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Conference Presenters



Additional information about this year's presenters is at: orsba.org/2021-presenters.



Todd Balsiger is supposed to be a sideline beekeeper. But raising one's own queens can quickly stretch the sideliner notion. His little outfit has grown to about 260 hives. He began raising queens really out of necessity so that he could have queens when he wanted them. The last few years, he has gotten a lot of inspiration from fellow beekeeper and OSBA Vice President Joe Maresh. We've luckily been able to send our bees to almonds the last three years. Todd lives in Forest Grove with his wife Heide. His son Ken is very close to finishing school at Oregon State University (CE). Other activities that he enjoys are bicycling (electric bike), skiing (downhill), and fishing (salmon mostly).



Amy Bartow graduated from Oregon State University with BS degrees in Botany and Wildlife Science in 2001. She has worked at the USDA NRCS Corvallis Plant Materials Center since 1997 specializing in production of native plants. Some of her favorite projects include revegetation following dam removal on the Elwha River in Olympic National Park and completion of the *Native Seed Production Manual for the Pacific Northwest*. Her current projects include establishing pollinator habitat on working lands such as vineyards and orchards, writing a seedling identification guide, and an oak savanna restoration. When she's not at work, Amy likes to go on wildflower hikes, laugh with her kids, play soccer, and eat ice cream sandwiches.



Priyadarshini Chakrabarti Basu, PhD, is currently an assistant professor in the Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, and is a courtesy faculty in the Department of Horticulture, Oregon State University. She was a former research associate in the Sagili Honey Bee Lab at Oregon State University. Priya is working on all things bees: nutrition, physiology, toxicology, molecular ecology, functional biology, and neuroethology using a wide array of multidisciplinary techniques including multiomics. She is currently serving as the Physiology, Biochemistry and Toxicology section representative to the Early Career Professional Committee of the Entomological Society of America and chairs the Outstanding ECP Series subcommittee on Entomology Today.



For over 21 years, **Jennifer Berry** has been the apicultural research professional and lab manager for the University of Georgia Honey Bee Program. Her research objectives have focused on queen breeding, improving honey bee health, IPM techniques for Varroa and small hive beetle control, sublethal effects of pesticides on beneficial insects, weeds for bees, and what best to plant in nontraditional horticultural landscapes to enhance pollinator populations and diversity. Jennifer's extension duties include teaching beekeeping to folks all over the world, including those incarcerated in Georgia's medium and maximum security prisons. Recently she has become a PhD student with plans to teach the Bees, Beekeeping and Pollinator Conservation course at UGA starting this fall.



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Emily A Carlson is a graduate research assistant and PhD student in the Honey Bee and Pollinator Health Labs at Oregon State University. For her current work on the ecology of pesticide exposure in honey bees and native bees, she has been awarded the National Science Foundation fellowship for Graduate Research and USDA Future Leaders Award. She is an Entomological Society of America's science policy fellow. Emily has a passion for working with diverse stakeholders towards the common goal of pollinator conservation. Her background includes writing and delivering natural resource education to landowners in King County, wetland restoration for a nonprofit nature preserve, and grant writing. Outside of the lab and the field, Emily enjoys participating in outreach opportunities and sharing her love of all six-legged creatures.



Dewey M Caron, PhD, is emeritus professor of Entomology & Wildlife Ecology, University of Delaware, and affiliate professor, Department of Horticulture, Oregon State University. He has had professional appointments at Cornell, University of Maryland, and University of Delaware. A sabbatical year was spent at the USDA Tucson Lab, and he had Fulbright-year grants in Panama and Bolivia with Africanized bees. Following retirement from the University of Delaware in 2009, he moved to Portland, Oregon, to be closer to his grandkids. He remains active in apiculture associations, bee education, writing for newsletters, giving short courses, assisting in beekeeper programs, doing surveys, and giving presentations. He is author of *Honey Bee Biology & Beekeeping* and has a new bee book, *The Complete Bee Handbook*.



For over fifty years, **Marjie Ehry** has offered local raw honey in a self-service honey stand located just out of Dundee, in Oregon's beautiful Willamette Valley. She has been judging honey at fairs and honey shows and promoting beekeeping for many years. The honey business has maintained many returning customers from around the world. Always stressing the importance of the honey bee, she has been active in the Oregon State Beekeepers Association and several other agricultural, civic, educational, and political groups throughout the years. In addition to giving her presentation, Marjie will judge this year's Honey Show, with Bonnie King and Susan Rauchfuss serving as Honey Stewards.



Karen Finley came into bees from an interest in habitat and flowers. Then she figured out that beekeeping was an amazing way to encounter all the interesting people and places in her community. After almost 30 years of just eating honey, blackberries, and blueberries, she is starting to try to figure out how to propagate queen bees. Karen runs Queen Bee Honey Company out of Corvallis/Alpine with her husband Tad Buford. They pollinate crops in the mid-south Willamette Valley and California's almonds as well as set out bees for bears and making honey in the foothills. They have been in business for almost 30 years.



After a six-year-long career in public schools, **George Hansen** transformed a hobby beekeeping operation into a commercial endeavor. Starting from a few swarms and a collection of retrieved nuisance hives, the company now runs 7,000 colonies in three states. The focus of the beekeeping is now primarily pollination service, with honey and wax making up no more than 30 percent of gross revenues. Recently, sales of starter colonies have become an important part of the business as well. George and his wife Susan are currently transitioning their business to their sons Matt and Joe. George represents ABF on the Honey Bee Health Coalition, participating on various work groups. He also serves on the boards of the Bee Informed Partnership and Project Apis m., and on the steering committee for the Bee and Butterfly Habitat Fund.



Thank you to OSBA for looking out for Oregon beekeepers for 100 years!



OSBA's unique leadership in supporting beekeepers and bee research has changed the trajectory of beekeeping in Oregon and served as a role model for beekeeping associations across the country.









Matt Hansen is a second-generation commercial beekeeper and co-owner of Foothills Honey Company in Colton, Oregon, along with his brother Joe and parents, George and Sue. He lives in Mulino, Oregon, with his wife Meagan and sons William and Tommy.



Andony Melathopoulos, PhD, is an assistant professor of pollinator health extension in the Department of Horticulture at Oregon State University. He has over 15 years of experience working with commercial beekeepers and land managers to develop solutions for keeping bees healthy. Since 2016, he has led OSU's efforts to design, implement, and evaluate a statewide pollinator health program. He is on the Coordinating Team of the statewide Oregon Bee Project, coordinates the Oregon Bee Atlas, and is host of the weekly podcast PolliNation. He sheepishly leads OSU's new Master Melittologist Program, but only by virtue of having a crack team consisting of a native bee taxonomist, Lincoln Best, an educational coordinator (and wizard), Sarah Kincaid, and the best program coordinator in the business, Jen Larsen.



Samuel Ramsey, PhD, graduated with a BS in Entomology from Cornell University in 2011, and focused his research on predatory and parasitic insect behavior. He cultivated an interest and expertise in the close relationships between insects and other creatures (symbioses), and dedicated his doctoral research to understanding a parasite killing honey bees globally (*Varroa destructor*). He completed his formal PhD education in Dennis vanEngelsdorp's Honey Bee Lab at the University of Maryland. As he examines the biology of honey bees, their associated parasites, and related threats, he considers how discoveries can best be made available to everyone. Samuel strives to understand the behavior and biologies of these threats in isolation while developing preventative and emergency measures to preserve honey bee species.



Born in Colombia, South America, **Juliana Rangel** obtained a PhD in Neurobiology and Behavior from Cornell University working with Tom Seeley. She then worked as a National Science Foundation postdoctoral research fellow with David Tarpy at North Carolina State University. Juliana became assistant professor of apiculture in the Department of Entomology at Texas A&M University in 2013 and was promoted to associate professor in 2018. Her research program focuses on the biological and environmental factors that affect the reproductive quality of honey bee queens and drones, the behavioral ecology and population genetics of unmanaged honey bees, and the quality and diversity of honey bee nutrition. She has taught numerous courses, served on a variety of committees, and received many awards for her research, mentoring, and contributions to apiculture.



Ramesh Sagili, PhD, is an associate professor in the Department of Horticulture at Oregon State University. He obtained his PhD in Entomology from Texas A&M University in 2007 specializing in honey bee research. His primary research focus is honey bee health, nutrition, and pollination. Ramesh initiated the creation of the Oregon Master Beekeeper Program and chaired the Oregon Governor's Task Force on Pollinator Health. His research program addresses both basic and applied questions to improve honey bee health and nutrition; hence, the majority of his research projects are collaborative efforts involving stakeholders (beekeepers and growers). He has authored important research and extension publications and has received several awards, including from the Entomological Society of America, EAS, and OSU.

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Steve Sheppard, PhD, is the Thurber Professor of Apiculture in the Department of Entomology at Washington State University, Pullman. His graduate research at the University of Illinois centered on population genetics and evolution in honey bees. With the USDA, he conducted research on Africanized honey bees and the genetic processes that accompany insect range expansions. In addition to ongoing research on genetics and evolution, the WSU Bee Program conducts research on insect introductions, basic mechanisms of genetic differentiation, and honey bee colony health. Interests include selecting and breeding honey bees for Pacific Northwest conditions, sublethal effects of pesticide exposure, the effects of metabolic gases on indoor storage of colonies, and use of fungi as a biological control agent for parasitic mites.



Paul Stromberg is currently the vice president of the Portland Metro Beekeepers Association and is working on completing the Master level of the Oregon Master Beekeeper Program. He is a hobbyist beekeeper who started working bees 48 years ago. He has a particular interest in maintaining self-sufficient apiaries with a combination of queen rearing and nucleus colony management. He enjoys mentoring new students and is frequently busy in his pollinator garden. In addition to participating on the Raising Queens panel during the Luncheon on Sunday, Paul is one of our Conference Moderators.



Ellen Topitzhofer became interested in honey bees while studying plant genetics and breeding at the University of Minnesota. She then studied honey bee nutrition as part of her MS at Oregon State University. After graduating, she worked with commercial beekeepers in the Pacific Northwest as part of the Bee Informed Partnership's Tech Transfer Team mastering on-the-ground testing, secret-keeping, and applicable research. Ellen currently works as a research assistant in the Oregon State University Honey Bee Lab.



Conference Moderators

Paul Stromberg (above) and **Rick Olson** (below) are Conference Moderators for all who are participating online this year.

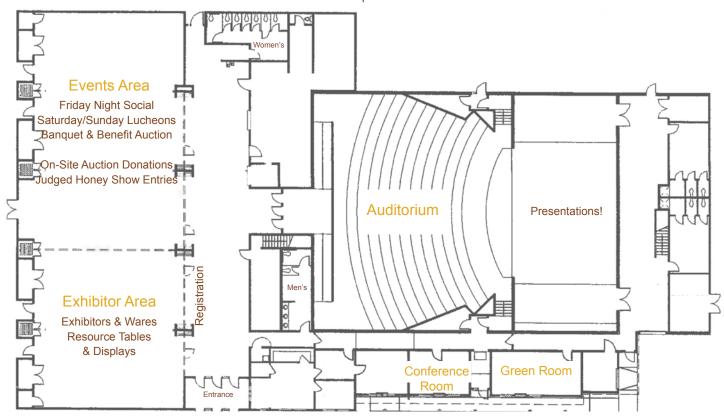


Rick Olson is an automation engineer who came to beekeeping fourteen years ago as a way to relax from traveling back and forth from the North Slope in Alaska. He started with one hive and currently has thirty-three, but still enjoys the hobby and continuing to learn and improve his beekeeping skills. He is a Journey beekeeper level student in the Oregon Master Beekeeper Program and enjoys connecting with beekeepers from around the country and around the world.

Session and Event Locations

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Conference Agenda

← Friday, October 22 ←			ASSOCIATION		
10:00 AM-	Encaustic Art Workshop* (Events Area)	4:30 рм	General Membership Meeting (Auditorium)		
NOON	George Hansen, Foothills Honey Company	6:00 рм	Social Hour (Events Area)		
1-4 PM	Beekeeping Basics Course (Auditorium) Dewey Caron, University of Delaware, Emeritus	7:00 РМ	Banquet* (Events Area) Take a Walk on the Wild Side: Oregon's Weird		
3:00 PM Executive Committee Meeting (Conference Room)			and Wonderful Native Bees Andony Melathopoulos, Oregon State University		
5–6:00 PM Submit Honey Show Entries (Green Room)					
5-7:00 РМ	Registration & Submit Auction Items (Lobby)		Benefit Auction to Follow (Events Area)		
	Silent Auction (Ongoing Online)		Online Silent Auction Ends		
7:00 РМ	Evening Social (Events Area)		Sunday, October 24		
	— Saturday, October 23 —	7:00 ам	Registration (Lobby)		
7:00 AM	Registration (Lobby)	7:45 AM	Welcome & Announcements (Auditorium) John Jacob or Joe Maresh, OSBA		
7:45 ам	Welcome & Announcements (Auditorium) John Jacob or Joe Maresh, OSBA	8:00 am	Weeds for Bees Jennifer Berry, University of Georgia, via Zoom		
8:00 am	Varroa After the Fat: Current Research Endeavors to Fight the Mite Samuel Ramsey, USDA Bee Research Lab, Beltsville, via Zoom	9:00 am	Strategies for Establishing Season-Long Native Habitat and NRCS Cost-Share Programs Amy Bartow, NRCS Corvallis, via Zoom		
8-9 ам	Submit Honey Show Entries (Green Room)	9:45 ам	Break (Lobby Exhibitor Area)		
9:00 AM	Wrap Up of Multiple Research Projects Testing the Efficacy of Oxalic Acid for Controlling Varroa destructor in Honey Bee Colonies		Factors that Affect the Reproductive Quality of Queens and Drones Juliana Rangel, Texas A&M University		
	Jennifer Berry, University of Georgia, via Zoom	11:15 ам	Multiple-Pronged Approach to Protecting Bee		
10:00 АМ	Break (Lobby Exhibitor Area)		Health Priya Chakrabarti Basu , Mississippi State University		
10:30 ам	Bee Research You Can Use: An Update of				
	Project Apis m. Funded Research George Hansen, Foothills Honey Company	NOON	Break (Lobby Exhibitor Area)		
11:15 AM	Pesticide Risk to Honey Bees: Does the Landscape Make the Poison? Emily A Carlson, Oregon State University	12:15 рм	Luncheon* (Events Area) Panel: Raising Queens and How They Fit into Beekeeper Operations Andony Melathopoulos, Oregon State University, Moderator, with Todd Balsiger, Karen Finley,		
NOON	Break				
12:15 РМ	Luncheon* (Events Area)		Matt Hansen, and Paul Stromberg		
	The Reintroduction of Caucasian Honey Bees to the United States Steve Sheppard, Washington State University	1:20 РМ	Honey Auction (Events Area)		
		1:45 рм	Overwintering Queen Banks in Oregon Ellen Topitzhofer, Oregon State University		
1:45 рм	Research Updates from OSU: Varroa, Bee Nutrition, Impacts of Wildfires, and More	2:30 РМ	Break (Lobby Exhibitor Area)		
	Ramesh Sagili, Oregon State University	2:45 РМ	Fight the Mite Thailand Edition: Understanding		
2:30 рм	Nutritional Ecology of Honey Bees in a Changing Landscape Juliana Rangel, Texas A&M University		the Mysterious Tropilaelaps Mite Samuel Ramsey, USDA Bee Research Lab, Beltsville, via Zoom		
3:30 рм	Break (Lobby Exhibitor Area)	3:45 рм	Final Comments & Adjourn		
4:00 PM	What You Always Wanted to Know About Judging and Marketing Oregon's Wonderful Honeys Marjie Ehry, Happy Bee		*Added cost in addition to Registration. Children must be accompanied by an adult for the Encaustic Art Workshop.		



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Program and Abstracts



— Friday, October 22 —

PreConference Workshops

Encaustic Art Workshop (Events Area)

10:00 AM-NOON

George Hansen, Foothills Honey Company (Events Area)

Encaustic is an ancient art medium using beeswax. The wax is pigmented and applied hot while it is liquid. Because the layers of wax are fused together with heat, encaustic is often referred to as *painting with fire*. The workshop will give attendees a chance to actually paint and create, while a variety of techniques will be demonstrated. Materials will be provided. Children must be accompanied by an adult.

Beekeeping Basics Course (Auditorium)

1:00-4:00 PM

Dewey Caron, University of Delaware, Emeritus

Course will be geared to beekeepers with from one to five years of experience. It will be all about healthy bees and sustainable beekeeping. We will start with getting colonies through the winter, what to do in the busy spring population explosion, halting swarms, baiting/capturing swarms (of other beekeepers, of course), supering, and then finish with a honey of a harvest.

Registration and Evening Social

OSBA Executive Committee Meeting (Conference Room)

3:00 PM

Registration and **Auction Donations** (Lobby)

5:00-7:00 PM

Submit **Honey Show Entries** (Green Room)

5:00-6:00 PM

Evening Wine and Cheese Social (Events Area)

7:00 PM

Saturday, October 23

Registration (Lobby)

7:00 AM

Silent Auction Ongoing (Online)

GENERAL SESSION (Auditorium)

Welcome & Announcements

John Jacob or Joe Maresh, OSBA

7:45 AM

Varroa After the Fat: Current Research Endeavors to Fight the Mite

8:00 AM

Samuel Ramsey, USDA Bee Research Lab, Beltsville, via Zoom

Varroa feed on honey bee fat body, not hemolymph. But what's happened since that discovery? What have we done to make that information more than just interesting trivia? Well, it turns out that knowing what the mites are eating is information that can be used against them. At the USDA Bee Research Laboratory, we're working on figuring out precisely how these findings can be weaponized against the greatest global pest of bees.



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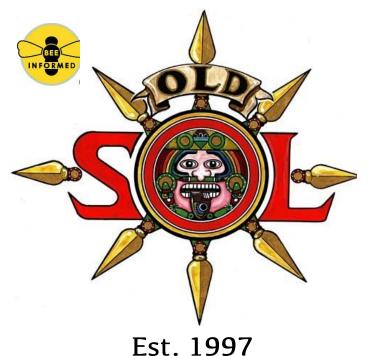
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Wrap Up of Multiple Research Projects Testing the Efficacy of Oxalic Acid for Controlling Varroa destructor in Honey Bee Colonies

9:00 AM

Jennifer Berry, University of Georgia, via Zoom

Parasitism by *Varroa destructor* is the number one reason our bees die. To be successful, we must manage these pests, or our bees are doomed. But how, when there are so many options/choices/opinions? For several years we've studied various application methods and doses using oxalic acid. Results will be discussed along with a best course of action to save our bees.

Break (Lobby | Exhibitor Area) ❖ Sponsored by Beeline Apiaries & Woodenware

10:00 AM

Bee Research You Can Use: An Update of Project Apis m. Funded Research George Hansen, Foothills Honey Company

10:30 AM

Project Apis m. is a nonprofit organization that funds research for the honey bee industry. It is the largest nongovernment source of funds for bee research in North America. The organization strives to support projects that will have practical outcomes for beekeepers. This presentation will highlight several projects that are currently being carried out that will impact beekeepers' management. In addition, PAm carries out several forage initiatives. The Seeds for Bees Program is putting forage useful to bees on the ground into almond orchards. Both growers and beekeepers are realizing gains. In the Midwest, the Bee and Butterfly Habitat Fund is providing seed and guidance to landowners wanting to create habitat for bees of all kinds and to support Monarch Butterfly migration.

Bee Pesticide Risk to Honey Bees: Does the Landscape Make the Poison? *Emily A Carlson*, Oregon State University

11:15 AM

Food and seed production relies on the pollinating force of European honey bee colonies to facilitate fruit and seed set in a diverse range of crops. Yet, colonies in agricultural environments may stray from the crop and forage on wild plants and other nearby food sources. This leads to a complex pesticide risk profile that includes pesticide risk from the products applied to the crop and the potential for honey bees to be exposed to chemicals applied to other attractive plants within their foraging radius. In this presentation, we will review the pesticide risk to honey bees in four pollinated crops of Oregon from March to August of 2020: sweet cherry (The Dalles and the Willamette Valley), white clover and meadowfoam (Willamette Valley), and carrot seed (Madras). In total, thirty-one agricultural sites were monitored for pesticides to understand pesticide risk to honey bee colonies moving through these pollination systems. Pollen samples, collected at early, peak, and late bloom for each crop, were analyzed for over 250 pesticide residues.

Break (Lobby | Exhibitor Area)

NOON

Luncheon (Events Area—Preregistration required)

12:15 PM

The Reintroduction of Caucasian Honey Bees to the United States Steve Sheppard, Washington State University

In the Old World, the honey bee, *Apis mellifera*, can be classified into over two dozen distinctive *subspecies*. These subspecies comprise populations adapted to specific geographic regions and can differ one from another in a number of ways, including morphology and behavior. European colonists imported eight Old World honey bee subspecies into North America between between 1620 and 1922 (when further importation of live bees was restricted by the Honey Bee Act).

Apis mellifera ligustica, imported from Italy in 1859, and the descendant "Italian" honey bees gained great acclaim with beekeepers for their golden color and productive and prolific colonies. Another subspecies that was introduced around 1880 and persisted to lesser acclaim was the Caucasian honey bee, Apis mellifera caucasica. This honey bee subspecies is native to the Caucasus mountains of Georgia, Russia, Turkey, and Armenia. Behavioral and apicultural properties of Caucasian honey bees include docility, slow initiation of spring buildup, low swarming tendency, and the extensive use of propolis. Sometimes called the *Gray Caucasian bee*, this subspecies is well suited to the cold climates characteristic of its mountain homeland and the Pacific Northwest. Its high use of propolis was once considered a negative apicultural trait. However, recent studies indicate that in-hive deposition of propolis may have significant benefits for colony health and there is now a renewed interest















in this subspecies for US beekeeping.

Since 2010, Washington State University has been importing germplasm (semen) from populations of *A. m. caucasica* residing in the Caucasus mountains. The intent of this effort was to develop a breeding program to reintroduce this subspecies to US beekeepers. From initial backcrosses through *A. m. carnica* maternal lineages using instrumental insemination, we have been releasing this stock through queen producer collaborators who use WSU supplied i.i. breeder queens of *A. m. caucasica* to produce F1 daughter queens available to beekeepers throughout the US. With the addition of cryogenic tools that allow long-term storage of semen, we have been gathering genetic diversity from regions within the range of the subspecies for inclusion in a germplasm repository both at WSU and at the USDA-NAPGP in Ft. Collins, Colorado.

Research Updates from OSU: Varroa, Bee Nutrition, Impacts of Wildfires, and More *Ramesh Sagili*, Oregon State University

1:45 PM

Honey bees are facing a multitude of stressors. Among these stressors, Varroa and poor nutrition are considered to be the two major stressors playing a significant role in colony declines. Over the past decade, the Oregon State University Honey Bee Lab has conducted extensive research to address these stressors. This presentation will provide new insights on Varroa control (Oxalic Acid Vaporization), honey bee nutrition, and impacts of wildfires on bees.

Nutritional Ecology of Honey Bees in a Changing Landscape *Juliana Rangel*, Texas A&M University

2:30 PM

While proper colony nutrition is pivotal for honey bee health, we still lack critical information about honey bee nutritional requirements, particularly with respect to the macronutrients present in pollen. The goal of this presentation is to go over the nutritional preferences of honey bees in our ever-changing landscape and to present a recent study that identifies the patterns of macronutrient consumption that drive honey bee pollen foraging in a nutritional geometric framework. We did so by exploring whether and how honey bees regulate their protein and lipid intake through a combination of field and laboratory choice and no-choice experiments using monofloral Brassica and Rosa pollen as well as artificial pollen substitutes. In the field experiments, bees regulated their protein-to-lipid (P:L) consumption by foraging nonrandomly between Brassica and Rosa pollen to reach an intake ratio of 1.4P:1L. This ratio was similar to the 1.5P:1L diet preferred by nurse bees in the no-choice laboratory tests. Nurse bees that consumed the 1.5P:1L diet also had significantly larger hypopharyngeal glands compared to bees in all other treatment groups. Our results suggest that honey bees have a preference for consuming macronutrients at a significantly lower P:L ratio (1.4P:1L) than previously thought, thus suggesting that lipid consumption is of undervalued importance in our current knowledge of honey bee nutrition.

Break (Lobby | Exhibitor Area)

3:30 PM

What You Always Wanted to Know About Judging and Marketing Oregon's Wonderful Honeys 4:00 PM Marjie Ehry, Happy Bee

The workshop will consist of pointers on the process of preparing honey products for show and what the judge will look for while inspecting "your" prize entry. We welcome interaction from the participants. We will provide answers to your questions as well as hope you leave with a sense of pride in beekeeping and the byproducts of your hive!

OSBA General Membership Meeting (Auditorium)

4:30 PM

Social Hour (Events Area)

6:00 PM

Banquet (Events Area—Preregistration required)

7:00 PM

Presentation: Take a Walk on the Wild Side: Oregon's Weird and Wonderful Native Bees *Andony Melathopoulos*, Oregon State University

Did you know Oregon has about 600 species of bees? We say "about" because, in fact, no one really knows how many bees call the state home. Oregon is the first state in the US to do a comprehensive inventory of its bees using volunteers, the Oregon Bee Atlas. This talk will describe some of the strange and weird bees that call Oregon *home* and the journey of discovery made by the state's volunteer Master Melittologists. And it will



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be recounted, not by some cloistered native bee biologist, but by someone who has apiculture in his veins and whose favorite bee remains the honey bee (i.e., someone like you).

- Oregon Bee Atlas: oregonbeeatlas.org
- The Quest to Find Every Kind of Bee in Oregon (Oregon Field Guide): youtu.be/9H6HS aUQqY
- Oregon Bee Atlas on YouTube: www.youtube.com/channel/UC4-fDUsqKRDxinSPSU4HpXw
- Oregon Bee Project: www.oregonbeeproject.org

Benefit Auction to Follow

Online Silent Auction Ends

10:00 PM

Sunday, October 24

Registration (Lobby) 7:00 AM

GENERAL SESSION (Auditorium)

Welcome & Announcements

John Jacob or Joe Maresh, OSBA

7:45 AM

Weeds for Bees

Jennifer Berry, University of Georgia, via Zoom

8:00 AM

According to Ralph Waldo Emerson, "A weed is a plant whose virtues have not yet been discovered." To most, a weed is a nuisance, something that interferes with our objectives, whether in a field of corn or a front lawn. Over the years, I have discovered the wonderful world of "bee weeds" on our farm and am learning how to encourage their existence, to help not only our honey bees but also our native bees—and other pollinators as well. I hope to share some of what I've learned. It has been as exciting discovery!

Strategies for Establishing Season-Long Native Habitat and NRCS Cost-Share Programs Amy Bartow, NRCS Corvallis, via Zoom

9:00 AM

Creating season-long bloom can be a challenge. Native plants provide many options for establishing high-quality pollinator habitat. This talk will cover species selection, installation, and maintenance, including management strategies to shift bloom times to cover the late-season gap in nonirrigated settings. The USDA Natural Resources Conservation Service provides technical assistance to private landowners, and, in some counties, also offer cost-share programs for installing pollinator habitat.

Break (Lobby | Exhibitor Area) ❖ Sponsored by Wraith Scarlett & Randolph

9:45 AM

Factors that Affect the Reproductive Quality of Queens and Drones *Juliana Rangel*, Texas A&M University

10:15 AM

A queen's developmental fate is highly plastic, and her reproductive physiology is greatly affected by the queen-rearing environment. Unfortunately, the multiple health risks of honey bee queens and drones include nutritional stress, exposure to pests and pathogens, and pesticide contamination, which cause problems at the individual and colony levels. One of the gravest problems faced by honey bees is parasitization by the mite *Varroa destructor*, which is typically controlled through the application of miticides such as tau-fluvalinate, coumaphos, and amitraz. In addition to miticides, colonies are also exposed to pesticides brought by foragers from agricultural settings, including the fungicide chlorothalonil and the insecticide chlorpyrifos. We explored whether exposure of wax to combinations of these pesticides during development affects honey bee queen physiology and worker behavior.

Our results support the ideas that mandibular gland pheromones act as honest indicators of queen reproductive fitness and that pesticide exposure of wax during bee development is an important and concerning factor impairing honey bee health. They provide evidence that, in honey bees, queen developmental plasticity influences several





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530.662.9181 • FAX. 530.662.6452 • TOLL FREE. 877.920.8500 509 BUSH STREET, WOODLAND, CA 95695 • CA Lic: 0B48084 important measures of colony fitness. Our study supports the idea that a honey bee colony can be viewed (at least in part) as the expanded phenotype of its queen, and thus selection acting predominantly at the colony level can be congruent with that at the individual level.

Multiple-Pronged Approach to Protecting Bee Health *Priya Chakrabarti Basu*, Mississippi State University

11:15 AM

Pesticides and poor nutrition are two important stressors that adversely affect bee pollinators. Understanding the impacts of these stressors can also help shape mitigative measures to counteract such detrimental impacts. This talk will focus on understanding the effects of pesticides on multiple age cohorts of honey bees, the long-term impacts of sterol biosynthesis inhibitory fungicides on plant pollen nutritional quality (blueberry pollen vis-à-vis phytosterols), and how you can help us build the first pollen nutritional database in North America.

Break (Lobby | Exhibitor Area)

NOON

Luncheon (Events Area—Preregistration required)

12:15 PM

Panel: Raising Queens and How They Fit into Beekeeper Operations

Andony Melathopoulos, Oregon State University, Moderator, with Todd Balsiger, Karen Finley, Matt Hansen, and Paul Stromberg

This panel discussion considers how raising our own queens impacts beekeeping operations, whether you are a commercial, sideliner, or hobbyist beekeeper. Panelists will discuss methods used and goals, what works and what doesn't work. The audience is encouraged to ask questions of the panelists through the moderator.

Honey Auction (Events Area)

1:20 PM

Overwintering Queen Banks in Oregon Ellen Topitzhofer, Oregon State University

1:45 PM

Reports on management practices suggest that the rate of queen replacement by US beekeepers has drastically increased in recent years. This heavy increase in demand for new queens warrants exploring solutions to increase queen supply, including the technique of overwintering queens in bank colonies. For this technique, beekeepers purchase late-season queens and suspend them inside a single "bank" colony during the winter. After winter, beekeepers can use these queens to replace failing queens in colonies prepared for almond pollination or introduce them into newly divided colonies after the almond bloom to offset winter colony losses. Ellen will discuss the results from the first year of OSU's project on overwintering queen banks.

Break (Lobby | Exhibitor Area)

2:30 PM

Fight the Mite Thailand Edition: Understanding the Mysterious Tropilaelaps Mite Samuel Ramsey, USDA Bee Research Lab, Beltsville, via Zoom

2:45 PM

Tropilaelaps mercedesae is among the most concerning threats to our bees, but continues to be one of the least studied. The Fight the Mite Initiative was established to proactively better our understanding of this creature without waiting for it to arrive in the US first. Funded largely by the beekeeping community, Samuel has been researching the behavior, life cycle, and vulnerabilities of the Tropilaelaps to chemical and nonchemical treatment measures. Though the project was ended abruptly as a result of the COVID-19 pandemic, this presentation will detail discoveries and data collected to this point, and the need for continued study.

Final Comments and Adjourn

John Jacob or Joe Maresh, OSBA

3:45 PM



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Thank You

Thank you to all attending in person and participating online, all presenting, all exhibiting and advertising, all donating to and bidding on items in the silent and benefit auctions, all working behind the tables and behind the scenes in planning, registering, sorting, tracking, managing and all not mentioned!

The Oregon State Beekeepers Association is able to do this only because of you.















































Conference Addendum



Program Change

—Sunday, October 24—

8:00 AM Crowding and Caravans: Is Industrial Beekeeping Bad for Bees? Lewis Bartlett, University of Georgia, via Zoom

Understanding the complexity of how nomadic, densely packed beekeeping might, or might not, make our bees sick – not always in the ways we might expect. Do we need to worry about how we crowd our bees together, and does a 'natural' life for bees mean a healthier life? Using tools developed for epidemiology and infectious disease biology alongside long-running experiments from the last half-decade, I'll detail surprising new findings showing that there are parts of modern beekeeping that we don't have to worry about, and show that the story of which bees are healthier is not always as simple as we might be led to believe, with beekeepers better at keeping bees healthy than we sometimes get credit for.



Lewis Bartlett is a post-doctoral fellow at the University of Georgia Honey Bee Program and Odum School of Ecology working at the intersection of infectious disease biology and beekeeping. His research focuses on how infectious diseases and parasites cause so much harm to honey bees and how we can help honey bees defend themselves. Lewis began keeping bees ten years ago, before moving to America in 2016. He has worked with scientists across the UK, Europe, and US on topics including the risk to beekeeping from mosquito control, how sugar feed quality impacts colony immunity, the effects of crowding or moving honey bees on their viral infections, and on testing novel pest control techniques. His research goals are to inform solutions to managing honey bee diseases and pests that are effective and economically viable.