CDFA Healthy Pollinators Working Group

Meeting Summary

June 4, 2015
CDFA Auditorium, 1220 N Street, Sacramento, CA

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OVERVIEW

The California Department of Food and Agriculture (CDFA) hosted a meeting of its expanded Healthy Pollinators Working Group to seek input on ways to increase forage opportunities, build partnerships, and identify strategies, tools, and resources that support efforts to improve pollinator health. CDFA Secretary Karen Ross and CDFA Program Manager Courtney Albrecht welcomed all meeting participants. Pollinator and honeybee experts, researchers, partner groups and CDFA staff provided informative presentations on a range of pollinator issues. Participants then worked in small groups to share perspectives and consider opportunities to enhance forage and build partnerships. Small group themes included the following:

- Identify and increase forage opportunities and habitat protection for pollinators.
- Build and support partnerships among groups connected to agricultural industries and land managers.
- Explore outreach opportunities with stakeholders, commodity groups, and the public.
- Support the use of technology to track hive locations, forage sites, and treatment sites.
- Explore the potential to fund forage opportunities and an apiary program.

- CDFA facilitate and coordinate information dissemination and sharing among partners, groups, and consumers.

INTRODUCTION AND PURPOSE OF MEETING

Courtney Albrecht welcomed participants and noted that the purpose of the meeting was to collect input and ideas to help improve pollinator health in California. The Healthy Pollinators Working Group formed in 2013 to facilitate communication and cooperation between CDFA and the apiary community. The California State Board of Food and Agriculture (Board) met in April 2014 to discuss the health of pollinators. The Board subsequently developed recommendations on ways that CDFA could help support and enhance pollinator health across the state. CDFA therefore reconvened and expanded the Healthy Pollinators Working Group with additional experts to hear ideas on how to implement the Board's recommendations.

Rich Wilson, Facilitator with the Center for Collaborative Policy, California State University, Sacramento, provided an overview of the meeting objectives and agenda. He noted two specific objectives: to create shared understanding about the key issues, challenges and opportunities surrounding pollinator health in California; and to generate ideas and strategies to help advance recommendations submitted to the Secretary of Agriculture that focus on improving pollinator health and increasing public awareness.

The meeting presented an opportunity for participants to hear presentations focused on creating forage opportunities; existing partnerships and current efforts to improve the health of pollinators; and CDFA activities that support pollinator health. The input and ideas subsequently generated by participants -- first in small groups and then shared in plenary -- are memorialized in this meeting summary and will be shared with CDFA Secretary Ross, the State Board of Agriculture, all meeting participants, and the general public.

WELCOME BY CDFA SECRETARY

CDFA Secretary Ross thanked the group for their participation. The meeting, she noted, is an important way to build shared understanding and to integrate ideas to support forage opportunities and improve pollinator health, which are key elements to CDFA's work and also link to the Governor's Climate Change agenda. She noted that there is more work that California can do to help, through leveraging of funds and assessing the issue at the state and federal levels. She expressed interest and support for CDFA to convene additional meetings on pollinator health.

Questions/Comments:

- With the federal focus on pollinator health, is there any program coming out with monetary incentives to support growers and plantings?
    - The National Resource Conservation Service (NRCS) has prioritized pollinators and forage support in the Farm Bill.
    - The Healthy Soils Initiative recognizes the many co-benefits of soil management practices to increase soil organic matter, including pollinator habitat.
    - The Regional Conservation Partnership Program, and other partners can leverage and request support for forage efforts.
    - The goal is to view pollinators as part of a whole farm, through a holistic approach to be able to quantify benefits for the pollinators.

- With the action plan from the Pollinator Health Task Force, will we see more detail from CDFA to provide research or will Federal sources provide such detail?
    - Funding will come from the federal level.
    - US Department of Agriculture (USDA) and potentially the Department of the Interior (DOI), are working together to coordinate efforts and funding opportunities in a cross disciplinary manner with different entities.

PRESENTATIONS

Enhancing Forage For Bees

Dr. Neal Williams, with the University of California, Davis provided information about current research and studies on the efforts to enhance forage for bees. Highlights of Dr. Williams' presentation include:

- A recent federal report released on pollinator health provides information on how the mixes of plant material, restoration of large areas of land, decision tools, and specific action items can support pollinator health.
- Pollinators include: managed pollinators like the honeybee, as well as unmanaged or less managed native pollinators like butterflies. Research efforts seek to understand how efforts to manage one provide benefits to both groups.
- Significant challenges are crop reliance on pollinators, and the decrease of managed pollinators. Almond crops are very pollinator dependent. This is important context for understanding bee forage issues.
- Bees are moved into and out of California. Bees that are moved around may have limited nutritional opportunities.
- Agricultural landscapes are challenging for pollinators due to the density and intensification of crops. Lack of crop diversity leads to few year-round pollinator opportunities. Some best management practices for agriculture can have an impact on pollinators, such as large fields, small borders, loss of spatial and temporal diversity (flowering time).
- Coordinated strategies include enhancement and diversification of forage types for pollinators.
- It is important to identify goals and articulate desired outcomes before implementing actions to achieve said goals.
- The two goals when enhancing forage opportunities are:
    - To support forage habitat for honey bee and wild bee populations;
    - To enhance pollination services to crops within agricultural landscapes.
- Selection and evaluation of plants for pollinator conservation and pollination service align with the above goals.
- When selecting plants, identify goals, maximize diversity of native plants by pollinator preference, and support key crops for pollinators. The following factors should be considered when assessing potential plants:
    - native origin
    - pollinator preference
    - bloom period
    - reliable growth
    - availability
    - cost effectiveness
    - pest neutrality
    - weed status

- Models are available to test which plants work well to support pollinators. A challenge is to match plants, pollinators, and the bloom cycle.
- Model inputs include:
    - The diversity of plants and crop pollinators;
    - The approach used in selection.
- The use of models optimizes plant composition; 10 plant mixtures is one option identified during the modeling. A larger mix of plants will attract more bees. For example a mix of 45 plants attracts more bees, but that is a complicated mix of plants. Model analysis helps identify diversity and advantages to the plant mixture.
- Field testing of plant species diversity is important, and the model shows how the mix of plants works in the field. Different mixes work well throughout the year, and help support forage options after and sometimes before the almond bloom cycle.
- There is an online resource to identify honey plants in California and a link to locally source those plants – http://ucanr.edu/sites/hpc/Honey_Plant_Research_Database/.
- Partnerships are important.

Questions/Comments:

- What are the locations for the tested plants, and do you have location recommendations to target plantings, specifically plant mixes on farms, as well as plantings regionally?
    - We tested mixes in Southern California, and as far north as Chico.
    - We are in the process to develop an online resource tool for mix placement.

- Are researchers working on possible habitat with the Almond Board? They were encouraged to remove habitat for food safety issues.
    - Researchers are working with the Almond Board to identify adjacent and neighboring habitat.

- Sunflowers are used as a cover seed before propagation, but they hybridize with the propagation crop. Can sunflowers be used as hedgerow crops?
    - Have clear goals and articulate the desired outcomes.
    - Sunflowers are not part of mix in Yolo County. There is a native sunflower plant that does not hybridize.

- You shared that it sometimes costs $100 an acre, but is that for the cost of seed or planting as well? What are the factors that go into that amount?
    - It is $100 per acre for seed only. Other costs will vary greatly depending on the farming practices.
    - Cost factors in the model are not yet differentiated, but those costs can be added in.

Creating Opportunities for Foraging

Christi Heintz, Executive Director, Project *Apis m*, provided a background on the organization, and how their involvement helps support honeybee forage and build partnerships. Highlights of Ms. Heintz's presentation include:

- Background on Project *Apis m* - CDFA project in 2009 focused on pest control, disease control, and colony health. California State Beekeepers Association Specialty Crop Block Grant in 2010 provided funding for landowners to plant honeybee forage. Project *Apis m* received another Specialty Crop Block Grant in 2012 to assess additional California specialty crops for benefits to

bees, identify possible seed mixtures, and track water availability in soils through the use of forage plantings.

- Current efforts to increase bee forage include identifying seed mixes for fall and spring bloom, sourcing seed suppliers, initiating forage plots in California and the upper Midwest, and justifying economic and ecological benefits.
- The locations to concentrate honeybee forage efforts are California and the upper Midwest.
- Project *Apis m* is working to increase other state partners to increase forage opportunities.
- Expand efforts to include oilseed crops such as borage, *Calendula*, canola, meadowfoam, and *Cuphea*.
- Large numbers of pollinators are needed to support almond crops. *Apis m* is seeking to build food resources for bees while they wait for the almond trees to bloom.
- *Apis m* is in the process of creating an early bloom mustard mix and a clover mix for forage after the almond bloom takes place.
- Sometimes there is resistance by growers to plant additional/side plants to support pollinators.
- It is important to enlist growers and demonstrate that forage adds value for them. Examples of added value include improved water penetration and increase of soil organic matter.
- *Apis m* is working toward providing demonstrations for growers, informational resources, and cover crop planting guides.
- *Apis m* is working toward providing personal outreach to support growers and encourage forage plantings.
- Challenges:
    - Think big – Consider large scale projects with many acres of forage for bees.
    - Too little water, too much water.
    - Growers concerns (i.e.: frost protection, mowed area between rows)
- Wildflower mixes are expensive. Mustard mixes and clover mixes are more cost effective.
- Many partners help Project *Apis m.*

Questions/Comments:

- What would bring down the cost of wildflower planting for farmers? Or reseeding costs?
    - A commitment towards the production of the wildflower seeds;
    - Seed naturalization.

- Have there been evaluations of the sites with the different mixes? What are the metrics used to measure honeybee forage?
    - Bee visitation rates and bee counting;
    - Colony weight (can weigh the hives to measure honey production);
    - Pollination traps and sensors;
    - Colony brood enhancement (foragers seeking more pollen to feed the brood).

- Is there room for additional research on how cover crops can improve water retention and/or absorption? Is there a possibility to receive grants related to water?
    - Yes, there is research on specialty crops and water retention.
    - More studies are starting. Information so far is positive regarding water retention.

Supporting Pollinator Health (CDFA Activities)

Nick Condos, Director, CDFA Plant Health and Pest Prevention Services (Division), provided an overview the Division's work to target and reduce pest invasion, as well as to assess impacts on local pollinators. Highlights of Mr. Condos' presentation include:

- The Division consults with agencies and other entities on those impacts.
- The Division developed best management practices on the application of pest management tools.
- The Division works with partners to notify registered pollinators and others about application of treatment to avoid exposure.
- Improved techniques to identify pests facilitate quicker clearance of bee shipments through state border protection stations.
- CDFA is responsible for the dissemination of federal Specialty Crop Block Grants to enhance competitiveness of specialty crops. Specialty Crop Block Grants are awarded annually through a competitive process. Between 2010-2014, over $940,000 was awarded by CDFA to projects in California that improve the health of honeybees and other pollinators. A request for Concept Proposals for 2016 awards is expected to be announced in the fall of 2015.
- The Division communicates with stakeholders on a variety of issues, including apiary groups. There is an Apiary Board. The Healthy Pollinator Working Group is an opportunity to share information and exchange ideas.
- Regulatory activities include the Apiary Brand Program to protect apiary owners from unlawful possession of branded equipment.
- Mandated activity through the Office of Pesticide Consultation and Analysis supports consultation on proposed pesticide regulations, and research on potential economic impacts of proposed pesticide regulations.
- The Ecosystems Services Database is a public database designed to communicate many social and environmental benefits, including pollination services, offered by California growers and ranches.
- To support outreach and education, CDFA recently revised the Pollinator Protection webpage with more information about new projects, information, and resources.

Questions/Comments:

- Does CDFA track the Africanized honeybee?
    - CDFA no longer has a program to track these bees. County commissioners generally conduct this kind of tracking service.

- There are emergency plans to treat for the Japanese beetle. What is CDFA's evaluation matrix for non-chemical treatment of this pest?
    - CDFA first conducts a pest rating assessment to determine the appropriate response to a newly introduced pest. If it is determined to be a detrimental pest CDFA evaluates a range of prevention, management and regulatory activities that could be utilized for an effective response. CDFA also conducts an integrated pest management analysis of all potential management options that will achieve the goal of the project. CDFA has implemented eradication projects against pests, such as the European Grapevine Moth, that incorporate non-pesticide management elements such as fruit removal, when those options can be implemented efficiently and in a cost effective manner. Regardless of the management option selected, we also confine the treatment to as small an area as possible based on the life cycle of the pest. CDFA evaluated the use of non-chemical options for eradicating Japanese beetle.

Honey Bee Health Coalition-Healthy Bees, Healthy People, Healthy Planet™

Stacey Smith, with The Keystone Policy Center, provided information about the Honey Bee Health Coalition/National Honeybee Coalition (Honey Bee Coalition). Highlights of Ms. Smith's presentation include:

- The Honey Bee Coalition is a national and state resource, and works as a public-private partnership. The Honey Bee Coalition also has Canadian representation.
- This winter losses of the colonies are at a historic high. The Honey Bee Coalition came together to assess the confluence of issues and challenges that stress colony viability.
- The Honey Bee Coalition has a diverse membership made up of many different stakeholders. The coalition has a vision and mission to seek out collaborative solutions to various aspects of the issues.
- The Honey Bee Coalition is focused on communication across and between stakeholders, and promoting science for sound decision-making. The Honey Bee Coalition has clear goals and work plans, and a process to engage the group through monthly conference calls and two yearly in-person meetings.
- The goal is to find win-win solutions across the issues facing honeybees.
- The stakeholder assessment process seeks to understand stakeholder goals and needs. As a foundational principle, the conveners sought to listen to the different perspectives, as there is no one solution to the problem. The Honey Bee Coalition seeks no one solution.
- There is a lot of progress being made in California, nationally, and in Canada. We will continue to look for further opportunities.
- Milestones include the Bee-Healthy Roadmap Report, tools for varroa control, hive management practices assessment (and other best practices), development and submission of recommendations to the National Pollinator's Task Force, and support of tech transfer teams.
- The Honey Bee Coalition seeks to coordinate with other pollinator task forces to look for synergies and best practices.
- The Bee Healthy Roadmap shares the Coalition's mission, vision, and strategic goals, and identifies four top priorities that need collective action and collaboration. The four priorities are:
    - Nutrition and Forage
    - Hive Management
    - Crop Pest Management
    - Cross Industry Collaboration
- Many resources are available on the Honey Bee Coalition website.

Questions/Comments:

- For unregistered hives, there is a challenge to communicate with the owner when it comes to managing invasive pests. What are ways to address this issue, and are there best management practices to deal with unregistered hives?
    - An example provided was of a situation in Kern County where county pest management enforcement removed the unregistered hives, and left a note at the physical location on who to contact to retrieve the hives and associated equipment.

- Of the twelve federal agencies asked to participate with the Honey Bee Coalition, is there an overarching advocate charged with implementing the recommendations?
    - The Honey Bee Coalition works closely with the US Environmental Protection Agency and the US Department of Agriculture, and seeks to maintain open contact with both agencies.

Building Partnerships for Pollinator Conservation

Dr. Vicki Wojcik, Research Director for Pollinator Partnership shared an overview of how this group works with diverse partners to support and address pollinator issues. Highlights from Dr. Wojcik's presentation include:

- Food and raw material production occurs directly and indirectly through pollinator services.
- Pollinator Partnership focuses on habitat for all pollinators, not just honeybees.
- Opportunities to support and restore pollinator populations in California include efforts to conserve and improve habitat, educate stakeholders, conduct research, and support policy.
- Signature initiatives of the Pollinator Partnership include:
    - North American Pollinator Projection Campaign (NAPPC)
    - National Pollinator Week
    - Original research
    - Pollinator policy
    - EcoRegional planting guides
    - SHARE mapping
- NAPPC has task forces and over 140 partner members.
- Other Pollinator Partnership efforts include:
    - Bee Smart™ Pollinator Gardener Application
    - S.H.A.R.E. – Simply Have Areas Reserved for the Environment
    - Bee Smart School Garden Kit provided by Pacific Gas and Electric
    - Pesticide applicator training supported by TransCanada
    - Business for Bees – American Business Collaboration for Pollinator Conservation Action
- Partnerships with utilities increase pollinator habitat opportunities. Efforts include:
    - Working with utilities to understand the benefits of utility corridors as pollinator habitat;
    - Conducting local projects (example: American River Parkway);
    - Conducting integrated vegetation management (IVM) with a focus on pollinators;
    - Planning the next step: testing whether honey bee mixes can be successful on utility easements;
    - Assessing forage opportunities near other management areas, and taking advantage of parallels between electrical grids and monarch migration routes nationally. Monarchs like utility easements. These provide an opportunity for pollinator mix seeding.
- Bee Buffer program is a pilot program with corporate sponsorship. It is a habitat program along farm buffer zones. The cost sharing is provided by Burt's Bees and NRCS. The corporate sponsor covers the cost of the seed for farmers to do habitat augmentation. The program exists in California and North Carolina.
- Potential partnerships to support habitat for bees include adjacent agricultural landowners and managers such as:
    - Growers groups
    - Land trusts
    - Public lands
    - Roadsides
    - Municipalities

Questions/Comments:

- What are some of the issues with plantings in the "Right of Ways", and what are the food safety concerns related to rodent infestation of forage plants that are near or next to crops?

    - The program response is in development, but most forage opportunities are adjacent to crops, not immediately next to the crops.
    - UC Davis is doing studies on habitat and rodents (Rachel Long). So far, researchers are not seeing forage habitat as attractive for rodents.
- There are still opportunities for people to apply for Bee Buffer program. Money is already spent for the seed budget. Pollinator Partnership is working to secure another year of funding for the program.

USDA Natural Resources Conservation Service

Thomas Moore with USDA Natural Resources Conservation Service (NRCS) provided information about the departments' services to support efforts to conserve and improve pollinator habitat and overall health. Highlights of his brief presentation include:

- NRCS has funding to support incentives for pollinator conservation through resource grants. The National Audubon Society's California chapter supports grant management processes.
- Grants for managed agricultural lands are available. Cut off dates for the current year cycle is July 17, 2015. Plans need to be in place before applying for a grant.
- The grants provide funding to support habitat conservation and improvements for pollinators. Pollinators are one of NRCS's designated declining focal species groups.
- NRCS is also a resource for potential projects.

SMALL GROUP DISCUSSIONS

Purpose and Structure of Small Group Discussions

Facilitator Rich Wilson reviewed the approach for the small group discussion session. The purpose of the discussion was to share ideas to create foraging opportunities, build partnerships and leverage additional support through ongoing CDFA activities. Five guiding questions helped initiate the group's conversation. The questions were:

1. What agencies/organizations should partner to create new, or enhance existing, foraging opportunities for pollinators? What key elements would an ideal partnership consist of, and what would be an ideal outcome?

2. What strategies, tools or resources may help promote pollinator health (i.e., funding or other resources, research, public awareness, etc.)? What are examples of agencies/organizations that could partner to promote pollinator health, and which strategy or strategies could they explore?

3. What role could CDFA play to create new, or enhance existing, partnerships to promote pollinator health?

4. Should future meetings of the Healthy Pollinator Working Group be held? If so, what topics could be explored through presentations and discussions that would be valuable to stakeholders?

5. What other ideas or strategies to improve pollinator health would you like to share?

Group Report Backs

Each small group reported out the key themes and highlights of its discussion. From the individual worksheets, the group flip charts and summary, and notes taken during the report out, the following suggestions, items, and themes emerged:

Question 1-Potential Partners/Ideal Outcomes

- Federal agencies: USDA/Natural Resource Conservation Service (NRCS), Bureau of Land Management and US Forest Service, US Environmental Protection Agency (EPA), USDA/Animal and Plant Health Inspection Service, USDA/Agriculture Research Service (ARS), US Army Corps of Engineers; NRCS can connect people to the funding sources.

- State agencies: Department of Pesticide Regulation, Department of Fish and Wildlife, Department of Forestry, Department of Food and Agriculture, CalTrans (enhance road medians/margins as forage areas); Department of Education, Department of Corrections, Department of Water Resources, agencies responsible for permitting, planning, and environmental compliance. There are many of opportunities for public land agencies to grant access to lands under their control, such as Caltrans.

- State, City, and County Parks and Recreation agencies can pay attention to urban pollinator habitat; the rural/urban interface is important for small scale beekeepers; engage with city planners, city councils, state park docents.

- Private landowners (including cattle ranchers), Land Trusts, land developers, schools and universities, Open Space Districts; PG&E and other utilities can provide access to and use of right-of-ways to provide area to over-winter bees.

- California Agricultural Commissioners can facilitate communication.

- Commodity groups, grower associations, California Farm Bureau, native plant societies, Master Gardeners, California Association of Nurseries and Garden Centers, pheasant groups, Ag in the Classroom, 4H, Future Farmers of America

- Nature Conservancy, Regional Conservation Districts (RCD), Sanitation and Water Districts. Focus on local partnerships to do mapping and engage the RCD to support local mapping of beehives.

- UC Cooperative Extension

- Farm equipment companies (e.g., John Deer and others), seed companies, state and national Beekeepers Associations, urban bee keepers, environmental organizations, tourism groups, railroads, schools

Question 2-Strategies, Tools, and Resources

Coordination and Planning

- Increase coordination among state agencies and all existing groups; develop a group to oversee efforts; prioritize pollinators at state level.

- Mimic federal directive on state level; California Governor to make a statement to prioritize pollinator health, direct agencies to work together, support pollinator garden at state capitol.

- Identify agencies and partners with common goal/benefit of improving pollinator health; consolidate similar projects and partnerships

- Work with Food and Drug Agency (FDA) to understand and address food safety concerns and issues in regards to forage projects.

- Establish goals for pollinator health improvements. Develop long term “Bee” vision and goal. Establish metrics to measure success or lack thereof.

- Develop a California specific action plan on pollinator health.

Technical Assistance

- Engage UC Cooperative Extension for outreach, information sharing, site-specific technical expertise, case studies and pilot programs, adaptive processes.

- Continue to support Tech Transfer Teams and other stakeholders doing research and development on pollinator health; provide loaner equipment and technical assistance; develop Best Management Practices for good husbandry

- Support and increase the use of technology between beekeepers and growers; centralize information on hive location and pest management treatment sites. Digital maps and Geographic Information System (GIS) services can locate and track forage opportunities and hive locations. Map forage areas at the county level. Have a GIS platform for pollinators that will help match available forage to bee keepers.

- Develop affordable seed mixes and a wildflower seed market for pollinators.

Funding

- Prioritize honeybees in policies and grants.

- Create economic incentives for growers and others to implement forage programs, aside from pollination benefit alone, such as seed oil, soil health, etc; develop win-win strategies; disseminate information about available programs; establish forage program startup support for the growers.

- Provide subsidies for farmers for forage (drought tolerant, before bloom); make incentives easy; provide help with applications; explore opportunities for income for farmers from forage projects.

- Explore funding opportunities for pollinator projects: Healthy Soils Initiative (explore how forage projects can increase carbon sequestration), Cap and Trade programs, State Water Efficiency and Enhancement (SWEEP) program (explore how forage projects can increase water efficiency via improved water absorption)

- Fund apiary staff and apiary programs at the state level; direct a portion of mill assessment to pollinator health

- Use crowd sourcing; provide funding for individuals willing to house apiaries on property, develop tax incentives

Outreach to Growers

- Increase outreach for growers. Provide a clear, cohesive, effective explanation of benefits of forage to growers; show pollinator benefits for/from other crops beyond almonds.

Outreach to the Public

- Raise visibility of pollinator issue; change public opinion, increase positive media attention through existing entities that support food production. Develop agricultural marketing orders and utilize agriculture media.

- Leverage National Bee Week (2016) as an opportunity to disseminate information to the media; promote stakeholder activities to general public through social media, nurseries, fairs, rotary, civic clubs, etc.

- Install demonstration gardens (at Capitol and elsewhere); provide education resulting in greater homeowner appreciation of native flowers (weeds); focus on highly visible managed lands adjacent to agricultural lands

- Craft a “What’s the best thing to plant for pollinators?” article in local newspapers; educate nurseries and consumers on native vs. non-native plants; develop a “Pollinator-Friendly” certificate; provide education on timing of blooms and pesticide application schedule

- Increase stakeholder participation and engage other groups such as consumers, educators, food labelers, and the private sector.

Improve Forage Opportunities

- Create year-round forage opportunities; apiary sites on public lands; work with restoration and hedgerow projects; improve orchard middle crops

Education

- Develop curriculum on pollinators, include demonstration hives and pollinator gardens at schools

- Educate small scale bee keepers and general public; facilitate regional conversations about foraging opportunities

Focus on Native Pollinators

- Use holistic and integrated approaches to native pollinators and their habitat; native pollinators need habitat to meet all life stage requirements

- Monitor native pollinator populations

- Support native pollinator recovery, as there are concerns about impacts of European honeybees on local pollinators

Other Ideas

- Mitigate pesticides

- Have beekeepers maintain their responsibilities.

- Consider whether bees and colonies will be included in the requirement to report the use of antibiotic prescriptions to consumers.

- Improve genetic diversity to seek *Varroa destructor* resistance.

- Pursue self-pollinating crops, diversify monocultures

Question 3-CDFA Role and Support

Coordinate Efforts

- Coordinate between agencies at the broad level, and between state and local entities, to get action items done.

- Liaise with County Agricultural Commissioners to promote consistency of regulatory efforts between counties.

- Strengthen CDFA's connection with partners and coordinate with local entities to implement policy actions at the local level. Look for short, medium, and long-term goals.

- Identify different groups who have slightly different goals but where there is some overlap of the desired outcomes, and look for coordination opportunities.

- Identify and reach out to land owners, private agriculture interests, and other potential partners to communicate benefits of helping pollinators; form partnerships with agencies and organizations that are in charge of undeveloped land; continue and promote conversations about benefits of forage opportunities.

- Develop task force to co-manage habitat with food safety.

Consolidate and Share Information

- Develop a cohesive network for everything related to pollinators with contacts, resources, and tools. Take what has already been developed and enhance it to create a one-stop-shop for information and resources. Identify existing groups working on similar goals/doing similar research and facilitate communication between them.

- Act as a coordinator and facilitator of communication between relevant entities and beekeepers. Coordinate sharing of maps to locate foraging opportunities and registries to invite hives onto properties (e.g. Farm Link). CDFA can provide education for registration practices and requirements.

- Convey information and facilitate activities between partners, landowners, and others to address education and information on apiary issues; look for case studies such as habitat projects, and report on what works, what has not worked; look for gaps in research and actions; coordinate information sharing (e.g., the Farm Bureau hosted a forum on forage access with information available to different agencies about what is necessary for lands to have a bee keeper on the land).

- Continue and improve outreach to stakeholders, commodity groups, and growers; use social media, fairs exhibits, master gardener classes, and nurseries for public outreach; provide more public education of pollinator issues

- Host on-line forums; use pollinator website to communicate rules and regulations, statistics on hives numbers, inspections, etc.; attend/host regional beekeeper meetings

Develop Policies and Allocate Resources

- Include a requirement for honeybee health in all CDFA funding opportunities; dedicate a percentage of Specialty Crop Block Grants to pollinators.

- Provide funding for central apiary staff and research; reinstate the Apiary Program.

- Prioritize the honeybee as a keystone pollinator; make it a policy to support public lands being available to bee keepers; qualify beekeepers to use public lands, and expedite access once qualified

- CDFA's available resources do not equate to policy; the Conservation Reserve Program no longer exists.

- Make the connection between air, water, and bees; coordinate pollinator work with ecosystem services.

Actions

- Create a model ordinance on urban bee keeping, distinct from management of hives and pest control; educate small scale bee keepers and general public

- Facilitate development of BMP's for beekeeper practices with beekeepers, land managers, and agricultural groups.

- Strengthen county enforcement of Food and Agriculture Codes pertaining to hive registration.

- Develop a precertification program for out-of-state bees; provide shade and other cooling mechanisms at border stations; 24-hour border station operations

- Assist in registration of bee health products; assess emerging diseases and pests for impact on pollinators; provide permit assistance, act as CEQA lead

- Bring back the "Ag in the Classroom" program; educate youth to reduce fear of bees.

Question 4-Additional Healthy Pollinator Working Group Meetings

- Future meetings to provide more group discussion time and discussion regarding other pollinators (birds, bats, etc).

- Future meeting to include a summary of June 4 meeting; discuss implementation of recommendations contained in this report; identify and discuss "Critical Questions"; develop quantitative goals, action items, and create teams.

- Future meetings should include DPR (Pesticide Regulation) presentation, increased participation from agriculture commodity groups, Pest Control Applicators, representatives of land trusts, NRCS, and wet lands, CDFA Animal Health Division and State Veterinarian. Invitations should be extended to researchers from Environmental Toxicology for Honeybees and food security representatives.

- Future meetings should include discussions of conflicting agricultural practices (mandarins vs. valencias, etc); response to catastrophic declines in pollinators; pesticide mitigation; increasing genetic diversity of bees, integrated pest management of varroa mite, including varroa resistance and ineffective treatments; future meetings should include a presentation of case

studies (habitat and outreach programs) and use of mitigation funds with public funds for pollinator conservation.

- Fewer meetings and more action to implement suggestions; meetings should present information that can be put to use.

- Evaluate the benefit/results of this meeting before scheduling another meeting; meet yearly

Question 5-Other Ideas or Strategies to Improve Pollinator Health

- Support cooperative research with university and USDA/ARS researchers; research bee forage that brings farmers money

- Annual Pollinator Conservation Conference

- Economical bee feed

WRAP UP AND NEXT STEPS

Ms. Albrecht expressed appreciation for participants' efforts, and acknowledged the groups' request for CDFA to be a central hub for information and coordination. She noted that the meeting was an opportunity for participants to share ideas and work together to give input on information, tools, and resources that CDFA can share with the agricultural community and stakeholders. She recapped that the meeting was to identify potential partners, foraging opportunities, and assess ways CDFA can support efforts to improve pollinator health in California. Ms. Albrecht encouraged participants to continue their discussions and to work with each other beyond the meeting.

MEETING ATTENDEES

Speakers/Participants	
Nick Condos	California Department of Food and Agriculture
Christi Heintz	Project *Apis m*
Stacey Smith	The Keystone Center/Honey Bee Health Coalition
Dr. Neal Williams	UC Davis, Department of Entomology and Nematology
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