

Attachment 1. Beneficial Actions for Pollinators, California Department of Food & Agriculture (CDFA) Plant Health and Pest Prevention Services Division level, by Branch, and Pierce's Disease Control Program

Background

CDFA currently is implementing or proposing to implement a number of actions to benefit pollinator species. To distinguish between actions that are reflected in baseline conditions, the actions are divided into two groups—those implemented by CDFA before issuance of the Notice of Preparation (June 2011), and those implemented since that time or to be implemented in the future.

Actions before June 2011

The Department of Food and Agriculture (CDFA) conducts an Integrated Pest Management (IPM) analysis of alternative treatment methods for the control of the targeted pest in the project area including:

- Mechanical Control;
- Cultural Control;
- Biological Control; and
- Chemical Control.

After the analysis, CDFA selects the effective alternative or combination of alternatives which are scientifically found to be likely to achieve the desired outcome.

CDFA (All programs) conducts a site-specific evaluation of the project area to determine what beneficial actions may be needed to reduce or eliminate any unintentional impacts on non-target species, including bee hives and the environment. CDFA implements the following types of beneficial actions for the evaluated project site:

- Establish the minimum and maximum project area boundary based upon the target pest profile and scientific expert consultations. The project area is the area where activities take place including a smaller defined treatment area, any regulatory actions if applicable and survey activity for presence of pollinators.
- Consult the California Department of Fish and Wildlife Natural Diversity Data Base for threatened and endangered species including pollinators (when this information is available).
- As appropriate, request technical assistance from the United States Fish and Wildlife Service, the California Department of Fish and Wildlife, and/or the National Marine Fisheries Service.

- Establish a treatment plan based upon selected alternative(s) and scientific expert consultations with added focus on beneficial actions in regards to pollinator activity in treatment area.

CDFA (All programs) conducts the following beneficial avoidance actions including, but not limited to:

- Implement site specific buffers as necessary to protect pollinators from possible drift.
- Check properties for evidence of bee hives to ensure protection of pollinators.
- Choose appropriate sprayer and nozzles using site-specific parameters to avoid unintended impacts to pollinators.

CDFA (Pest Exclusion)

- Maintains a Bee and Beehive Information webpage that includes European Honey Bee Pollination Information, Bumble Bee Pollination Information and Small Hive Beetle Management. Also included is information on Africanized Honey Bee.
- Staff provides information and additional referrals to callers re: bees.
- Border stations provide water in the form of available water faucet for hose hook-up by Apiary Shipment drivers at no charge to the drivers. When bees are shipped by truck in their respective bee hives, the interior of the hives will get very warm. At the point when the temperature in their hive becomes too dry and hot, the bees may be inclined to disperse to find a water source. Additionally the warm environment will cause stress and may be a detriment to bee health. The CDFA has worked with Apiary stakeholders and top bee scientists to improve conditions during critical inspections at the stations, as well as, worked to enhance the overall health and vitality of the colonies. Providing a water source to drivers to hose down their hives will ensure that bees can settle down comfortably in their hives & have the moisture needed for a healthy environment.
- With CDFA's border station operation data and coordination efforts, Project Apis m, (a non-profit organization dedicated to funding and directing research to enhance the health and vitality of honey bee colonies while improving crop production), created a video on Colony Management BMPs, in regard to preparing apiary shipments, what to expect at the California Agricultural Inspection Station and at the shipper's end destination. http://projectapism.org/?page_id=225.
- Recent figures from Project Apis m reflect that the California Almond Industry requires over 1.6 million colonies of bees to pollinate their crop. Over 1.2 million bee colonies, or approximately 2,600 truckloads of bee hives, come from out of state and require inspection to make sure they are free of invasive pests that can cause damage to California's agriculture and natural environment. The Border Stations use digital imaging technology to send images to the California Plant Pest Diagnostic Laboratory Scientists to identify potential serious pests that may be discovered at the inspection station. The suspect pests intercepted and imaged are then sent to the Plant Pest Diagnostic Lab for final confirmation. The digital imaging and subsequent transmittal for identification at the lab is available 7 days a week at no extra charge to the bee keepers. The digital imaging will provide for faster

ID and less hold time for Apiary Shipments in order to get the trucks on their way and keep the bees from becoming stressed from heat, noise, or other stressors.

- An Ant Free Certification system created for certification of bee hives at origin. This certification allows beekeepers to prepare in advance for a more streamline inspection at the Border Station, and to be able to unload hives at their destination without waiting for county apiary inspectors.
- <http://www.cdfa.ca.gov/plant/PE/interiorexclusion/pdfs/BeeFlyer-HoneybeeShipmentsEnteringCA.pdf>.
- CDFA provides referrals to a location across the street from the Needles Border Station to provide Apiary shippers who do not pass inspection, the option of having their loads cleaned by 3 different vendors who will come out to the assigned location and perform the service. The vendors charge for this service. If the Apiary shipper does not want this service, they have the option to return out of state and locate another service. This referral service which is done informally, (the vendors have supplied their business information to CDFA for verification purposes) was a recommendation by the Apiary industry.

CDFA (Pierce's Disease Control program) contracts with the County Agricultural Commissioner's (CAC) office for local program activities. When needed, a licensed pest control operator hired by the CAC's office, and operating under the authority and direction of the PDCP and the CAC, performs urban & residential treatments . Pierce's Disease Control Program beneficial actions are included in the all CDFA Programs prior to June 2011.

CDFA (Integrated Pest Control)

- Actively survey area to be treated up to and including the day of treatment, specifically for new arrivals of pollinators. In rangeland treatment areas, beekeepers may set down hives on land that they believe is for public use. Private landowners may be unaware of this activity. Treatment schedules are altered if presence of new hives is discovered until hive owners are located and bees are moved out of the area.

CDFA (Plant Pest Diagnostic Center)

- Prior to June 2011, CDFA's Dr. Andrew Cline has been the main point of contact for insect interceptions on apiary loads at California border stations. Dr. Cline directs identification activities for pests of concern on apiary loads after hours (5pm-10pm M-F) and weekends (8am-10pm) to facilitate shipment of bees within the state. Dr. Cline's educational, research, and other scientific qualifications to serve as an apiary inspector are provided below.

Dr. Andrew Cline:

- Ph.D. Committee member; Edward Atkinson; University of Florida, Dissertation Title: Integration of Small Hive Beetle (*Aethina tumida* Murray, Coleoptera: Nitidulidae) into Western Honey Bee (*Apis mellifera* L., Hymenoptera: Apidae) Colonies. Graduated in spring 2011.

- Presenter in 2010: Pacific Coast Entomological Society; Sacramento, CA; Seminar Topic: Nitidulid Beetles as Pollinators of Different Plant Species from Around the World.
- Presenter in November 2010: Entomological Society of America, San Diego, CA; Poster Presentation; Topic: Small Hive Beetle Associations with Western Honeybees.
- Collaborator/Expert Identifier for work completed in 2008: two graduate student projects involving beetle pollinators—one project associated with New World palms in Colombia, and one project with cycads in South Africa.
- Collaborator for work completed in 2007: Investigations in the Biodiversity of Soil and Canopy Arthropods (IBISCA) working group in Panama and Vanuatu. Biodiversity initiative that looked at the differential diversity of insects in soil and canopy habitats in tropical regions throughout the world, including pollinators.
- Publication: Audisio, P., **A.R. Cline**, A. De Biase, G. Antonini, E. Mancini, M. Trizzino, L. Costantini, S. Strika, F. Lamanna, and P. Ceretti. 2009. Preliminary re-examination of genus-level taxonomy of the pollen beetle subfamily Meligethinae (Coleoptera: Nitidulidae). *Acta Entomologica Musei Nationalis Pragae* 49(2):341-504.
- Publication: Jelínek, J., C.E. Carlton, **A.R. Cline**, & R.A.B. Leschen. 2010. Nitidulidae Latrielle, 1802. Pp. 390-407. *In* Leschen, R.A.B., R.G. Beutel, & J.F. Lawrence (eds.) *Handbook of Zoology. Volume IV. Arthropoda: Insecta. Part 38. Coleoptera, Beetles.* 786pp.
- Publication: Jelínek, J. and **A.R. Cline**. 2010. Kateretidae Erichson in Agassiz, 1846. Pp. 386-390. *In* Leschen, R.A.B., R.G. Beutel, & J.F. Lawrence (eds.) *Handbook of Zoology. Volume IV. Arthropoda: Insecta. Part 38. Coleoptera, Beetles.* 786pp.
- Publication: **Cline, A.R.** and P. Audisio. 2010. Revision of the New World Short-Winged Flower Beetles (Coleoptera: Cucujoidea: Kateretidae). Part I. Generic Review and Revision of *Anthonaeus* Horn, 1879. *The Coleopterists Bulletin* 64: 173-186.
- Audisio, P., **Cline, A.R.**, Lamanna, F., Trizzino, M., Antonini, G., Mancini, E., & DeBiase, A. 2009. Revision of the Southern African Pollen Beetle Genus *Anthystrix* (Coleoptera: Nitidulidae:Meligethinae). *Annals of the Entomological Society of America* 102(6):998-1012.
- Publication. Ellis, J.D., K.S. Delaplane, **A.R. Cline**, & J.V. McHugh. 2008. The association of multiple sap beetle species (Coleoptera: Nitidulidae) with western honeybee (*Apis mellifera*) colonies in North America. *Journal of Apicultural Research* 47(3):188-189.
- Publication: Audisio P., Kirk-Spriggs A.H., **Cline A.R.**, Trizzino M., Antonini G., Mancini E. and DeBiase A. 2008. A new genus of pollen-beetle from South Africa (Coleoptera: Nitidulidae), with discussion of the generic classification of the subfamily Meligethinae. *Insect Systematics and Evolution* 39:419-430.
- Publication: Audisio, P., A. De Biase, A.H. Kirk-Spriggs, **A.R. Cline**, M. Trizzino, G. Antonini & E. Mancini. 2008. Molecular biogeography of Mediterranean and southern African

disjunctions as exemplified by pollen beetles of the *Meligethes planiusculus* species-group and related taxa (Coleoptera: Nitidulidae; Meligethinae). *Biogeographia* 29:45-65.

Dr. Martin Hauser

- Scientific consultant and mentioned in the article “Pollinators in Peril by D.L. Green in “South Carolina Wildlife” July/August 2008.

Actions Currently Taken

CDFA (Plant Health lead and all programs) –

- Work collaboratively with the State Apiary Board to promote bee health.
- CDFA Secretary appointed a new Liaison to the Apiary Board in 2013 to facilitate a new exchange of ideas, better communication and recommendations from Apiary Industry regarding their concerns.
- In 2013, CDFA formed a California Pollinator Workgroup to exchange ideas, identify existing research areas, existing project areas, and identify potential criteria for critical research needs. The main goal was to discover gaps in research areas and suggest potential projects as a result of the dialog with bee experts, regulatory agencies, industry stakeholders and other conservation partners.

CDFA – Pest Detection/Emergency Projects

- Identify registered beekeepers in the treatment zone by contacting the Agricultural Commissioner for their list
- Once identified as located in the treatment area, notify registered beekeepers via a notification packet which includes:
 - Letter addressed to registrant serving as a “notification of pesticide application.”
 - Map(s) of treatment area.
 - Product labels and application rates, including any supplemental or section 18 registrations).
- Notify treatment personnel of any properties that are known to have bee hives so they can coordinate with bee keepers if alternative scheduling is required.
- Add Bee Rescheduling line in post treatment notice – your property was not treated today due to pollinator activity.
- Be on the lookout for bee hives to provide unregistered bee keepers that same information as registered bee keepers. Provide alternative treatment schedule to newly located bee keepers.
- Educate treatment personnel on how to handle bee encounters.

- Check host material before applying treatments for presence of pollinators.
- Identify actions to be taken in site specific situations.
- Cover non-target flowering plants and water sources (i.e. bird baths) during treatment to avoid drift or drip from adjacent or overhanging treated plants when necessary.
- Provide expert (entomologist) at public meetings or fact sheets to answer commonly asked pollinator questions.

CDFA Pest Exclusion - Border Stations

- Identify gaps and trends in border station hold times for bee shipments and work on process improvement to streamline inspections.
- Provide dedicated lines for watering stations for bee health management and colony control, located in border stations with high Apiary Shipment volume.
- Provide misting sprayers at designated border stations if possible. At some stations the water has a high mineral content and the sprayers become inoperable after only a week, so this service is not practical in all areas.
- Encourage Ant Free Certification to provide ease of inspection at Border Station and ability to unload at destination without waiting for County Apiary staff.
- Border Stations provide operation data to Apis m and Apiary Industry Point of Contact to allow for dialog and assessment of critical needs of the Apiary/Pollinator community.

CDFA (Pierce's Disease Control Program)

- Identify registered beekeepers in the treatment zone.
- Notify registered beekeepers with information about the upcoming treatments and offer alternative scheduling if needed to protect hives.
- Be on the lookout for additional bee keepers so the same information offered to registered bee keepers can be offered to new bee keepers.
- Educate treatment personnel on how to handle bee encounters.
- Provide for pollinator experts at public meetings.
- Follow the same protocols as CDFA Pest Detection and Emergency Project treatment crews.

CDFA (Integrated Pest Control)

- Apiary Brand – Information Packet for Resident Apiaries. Apiary Brand ensures that information regarding owner of hive will be retained by the County of origin. This information may be critical in case of any emergencies and appropriate regulatory staff must find out who owns the bee hive.

- Issues Apiary Brand for a \$25 one-time charge.

CDFA (Plant Pest Diagnostic Center)

- After June 2011, Dr. Andrew Cline has been the main point of contact for insect interceptions on apiary loads at California border stations. In addition to providing identification of possible invasive pests during the normal business hours of 8AM – 5PM, Dr. Cline directs identification activities for pests of concern on apiary loads **after hours** (5pm-10pm M-F) and **weekends** (8am-10pm). These additional on-call hours' result in better facilitation of bee shipments by providing inspections & identification 7 days per week for apiary shipments at select border stations that see a high volume of apiary shipments.
- **Dr. Stephen D. Gaimari**, Hosting a seminar for the Laboratory seminar series, Speaker, Leithen M'Gonigle (UC Berkeley/ Entomology), 17 April 2014, Title: "Reassembly of native pollinator communities in an agricultural landscape in California" to further educate pollinator community as well as other attendees on the latest research and current developments.
- **Dr. Martin Hauser** – First identification of Stingless bee (*Plebeia* sp.) and along with USDA determined no impacts to native pollinators. Research in cooperation with USDA and property owners.
- **Dr. Martin Hauser** - Since 2011 annually identifies the Syrphid pollinators (often around 2000 specimens per year) for the Kremen lab in Berkeley (<http://nature.berkeley.edu/kremenlab/index.html>).
- **Dr. Martin Hauser** -Publication: Dahlberg, L., **M. Hauser**, & D. Yanega. 2013. Japanese carpenter bee, *Xylocopa appendiculata* Smith 1852 (Hymenoptera: Apidae) potentially established in Santa Clara County, first record in North America. The Pan Pacific Entomologist 89(4):226-229.

Proposed Activities/Actions to Benefit Pollinators

- Further promote benefits of the Apiary Brand and positive outcome of registration by expanding webpage information.
- Coordinate with University and Extension experts on more materials for Education and Outreach on Bee Biology and Management.
- Coordinate with Caltrans, land management, and conservation agencies to provide access for bees to native forage.
- Coordinate with other agencies and promote awareness of need for access to more forage for native pollinators.
- Provide dedicated water lines for watering bees at all border stations.
- Provide outreach and education about access to clean water for bees.

- Promote the protection of wild and native pollinators by education, outreach and coordination with native pollinator experts.
- Encourage permitting of native pollinators.
- Work collaboratively with State Apiary Board to make recommendations regarding funding of pollinator health research through sources of available funding including federal and state grant programs.
- Encourage Ant Free Certification to provide ease of inspection at Border Station and ability to unload at destination without waiting for County Apiary staff.
- Create an enhanced checklist for treatment crews that includes a pollinator awareness section.
- Enhance Pest Exclusion Webpage to include more information on pollinators to expand access to information and easy registration.
- Create a Plant Health Division Webpage and list serve.
- Partner with bee experts and sister agencies to develop more regionally located cleaning areas. CDFA currently only has the Needles staging area as an option for Apiary Shippers.
- State Fair Pollinator Garden – CDFA to provide funding for same.
- 21st Century IPM – Pollinator Section.