



Partners for Sustainable Pollination

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RE: Conservation Practice Technical Assistance Comments—Need for Pollinator Enhancements

Partners for Sustainable Pollination (PFSP) is pleased to respond to the Natural Resources Conservation Service (NRCS) request for comment (74 FR 27995-6, June 12, 2009) as part of the agency's review of Conservation Practice Technical Assistance, as required by Section 1242(h) of the Food Security Act of 1985 (as amended by the Food, Conservation, and Energy Act of 2008). PFSP's comments are directed to the completeness and relevance of conservation practice standards to **native and managed pollinators** for local agricultural, forestry and natural resource needs.

PFSP is a volunteer-based nonprofit headquartered in Santa Rosa, California that is dedicated to improving the health of honey bees through a collaborative approach involving beekeepers, growers, scientists and land management agencies with a concurrent objective of contributing to restoring native pollinator populations. In brief, PFSP believes that conservation practice standards need updating to address the habitat needs of managed native pollinators—and in particular larger scale forage needs of honey bees—and urges NRCS to take the following actions:

- Designate habitat and best management practices (BMPs) for managed and native pollinators as a priority resource concern.
- Establish a national Technical Notes for managed and native pollinators, including adequate recommendations on larger scale forage needs of managed honey bees.
- Integrate larger scale forage needs of managed honey bees into pollinator Technical Notes at the state NRCS level.
- Revise relevant conservation practice standards at the national level to include practices that improve habitat for managed and native pollinators, including where appropriate practices that help address larger scale forage needs of managed honey bees.
- Revise the affected conservation practice at the state level as expeditiously as possible to incorporate practices that improve habitat for managed and native pollinators, including where appropriate practices that help address larger scale forage needs of managed honey bees.
- Establish a Working Group of Beekeeping representatives and research and extension experts to assist NRCS.

NRCS Should Clarify Conservation Practice Standards for Managed and Native Pollinators

In evaluating the NRCS preliminary findings from the agency's internal review, PFSP would offer feedback on the following finding: "NRCS conservation practice standards have the flexibility to address the resource needs on all types of farming operations and resource interests, including those specified in section 1242(h). NRCS will modify selected practices to better clarify their relevance to local agricultural, forestry, and natural resource needs, including specialty crops, **native and managed pollinators**, and bioenergy crop production." [Emphasis added].

PFSP agrees that the conservation practice standards have the flexibility to address managed and native pollinator resource needs and applauds the agency's commitment to modifying selected practices to better clarify their relevance to managed and native pollinators. This work should proceed expeditiously, with emphasis placed on the larger scale needs of managed honey bees.

Identify Conservation Practices That Can Provide Larger Scale Honey Bee Pasture Requirements

The notice includes an Appendix containing the list of national Conservation Practice Standards and Codes. PFSP recommends reviewing the full range of Conservation Practice Standards, identifying which practices can provide larger scale honey bee pasture requirements and incorporating such information into Technical Notes and other forms of technical assistance. For example, Exhibit 1 is a draft effort by PFSP to identify such practices that would be suitable in California.

Exhibit 2 is a draft effort by PFSP to identify and group conservation practices by "Type of Bee Pasture" in California. This concept is adapted from 'Bee Pasture' categories as defined by Dr. Keith Delaplane (University of Georgia): *Single Year Productive, Multi-Year Productive, and Permanent Productive*. PFSP believes this is a practical way to approach larger scale practices that growers could readily relate to in their own operations.

Each of the above approaches could then be tailored by state NRCS offices to identify Conservation Practice Standards that are suitable for providing honey bee pasture in each state. As part of the review of existing Conservation Practice Standards, NRCS should determine whether it is necessary and appropriate to establish new Conservation Practice Standards for larger scale honey bee pasture requirements, and if so work with qualified experts to accomplish that outcome.

Enhance Planting Mixes to Include Plants that Provide Optimal Forage for Honey Bees

PFSP urges that planting mixes be enhanced at the national— and especially state—levels by including plants suitable for each region that provide optimal forage for honey bees. For example, Exhibit 3 is a pollinator plant list for California that was incorporated into a Pollinator Technical Notes (No 78) recently published by California NRCS, which focused on the needs of native bees. While many of these plants can also be used in larger scale bee pasture for honey bees, it would be appropriate to ask experts to review the list and identify and add any additional plants that would be optimal for honey bee pasture.

There are several plant species, particularly clovers, that are being widely used on conservation land that provide optimal forage value and carrying capacity for honey bees, such as in the Conservation Reserve Program (CRP), that are non-native and non-invasive. American Beekeeping Federation president Zac Browning testified at a congressional hearing in 2007 that beekeepers in aggregate place as much as 40 percent of their hives on CRP lands for high quality and safe natural forage (no pesticide use) when the hives are not being used to pollinate crops. PFSP urges that NRCS continue to include such species in recommended planting mixes where appropriate.

PFSP is pleased that the new California NRCS pollinator plant list (Exhibit 3) does include such plant species. However, PFSP understands that at least one state NRCS office (reportedly Minnesota) excluded all non-native species, including only native species, in updating plant lists for pollinators on conservation lands. This type of action is a giant step backward for managed pollinators and should be reversed, at least until proven native plantings of equivalent forage value and carrying capacity can be identified.

Convene Working Group to Assist in Review and Enhancements

PFSP recommends that NRCS further this objective by establishing and convening a working group of beekeepers and qualified research and extension specialists to conduct the necessary review and revisions.

Providing Habitat for Managed Honey Bees is Important to Agriculture

California is a state where these actions are especially critical in helping to reduce the serious deficit in natural forage for honey bees in California. A major forage deficit in California drives the importation of honey bees from other regions of the U.S., the importation of bee packages from Australia and the importation of contaminated pollen for honey bee feed supplements from sources like China to help meet California agriculture's pollination needs. These interregional movements and imports if unabated represent continuing vectors for more diseases and pathogens that could devastate honey bees in California and elsewhere in the U.S. and the essential pollination services they provide to agriculture in California and across the nation.

Any increases in local forage and bee pasture can reduce the need for imported hives, produce healthier and more sustainable local pollinator populations, and reduce the potential for pests and diseases brought in through imports that can devastate honey bees and other pollinators. Updating the Conservation Practice Standards at the national and state levels is a critical step in helping farmers and ranchers increase habitat for managed and native pollinators.

Habitat Forage Essential for Honey Bee Health and Viability of Beekeepers

Many key specialty crops are almost totally reliant on the services provided by beekeepers and their managed honey bees. Honey bees and their beekeepers are clearly in trouble, and the ag pollination services they provide are at risk. While unprecedented honey bee losses due to Colony Collapse Disorder (CCD) have been making headlines recently, the reality is that honey bees and beekeepers have been struggling with multiple challenges. Honey bees have succumbed in record numbers, jeopardizing the continued viability of our commercial pollination industry and predictable and affordable services for growers in California and across the U.S. There are increasing indications that native pollinators are also at risk.

While honey bees and native bees can be regarded as an agricultural input akin to tractors and fertilizer, they are unique in that they are a biological input that requires maintenance and nutrition throughout the year. They can't just be put on the shelf until they are needed for the next pollination season.

There is a broad scientific consensus that natural forage and nutrition are essential to good bee health and to bees' ability to cope with pests, pathogens and other stressors. Improving natural forage for honey bees and native pollinators is a proven method of contributing to their health and sustainability.

Historically, beekeepers have had access to bee forage after their bees finish pollinating crops for the season. Unlike other sectors in agriculture, most beekeepers do not have control over the land they need to nourish and manage their bees. They are essentially “guests” of other landowners and are dependent on others to provide safe habitat and practices needed for bee pasture they need to keep their honey bees adequately nourished and healthy honey bees.

Over the decades, a number of forces including urbanization, changes in agricultural practices and pesticide use, and bans on honey bees at restoration projects on public lands have combined to decrease the acreage and sites available as safe bee pasture to beekeepers and their bees. The impact of the lack of availability of natural forage and resulting poor nutrition on the health of honey bees are well documented.

Entomologists agree that bees require a mixing of pollens throughout the year to acquire the necessary proteins, lipids, vitamins, minerals and micronutrients required by bees to be at their healthiest—or another way to view it—their most resistant to pests and pathogens. Proper nutrition is also essential for the physiological development of bees to live their intended life span.

The colony's survival is contingent on a sufficient adult population to retain viability coming out of winter. Currently there is no man-made supplement that can be substituted and provide for the complete dietary needs of healthy bees. Recent investigations conducted by Dr. Gloria DeGrandi-Hoffman at the USDA, ARS Carl Hayden Bee Research Center (Tucson, AZ) revealed that while supplements are of some use to adult bees they are not useful in raising brood (or new bees). Therefore, honey bees must have access to natural, pollen-producing plants in order to replenish colony populations.

Pollens are the health food in honey bee colonies. They provide protein, lipids, vitamins, minerals, sterols, antioxidants and other nutrients required by the bees. No single pollen source can provide all the nutrients required in the diet of honey bees. This can become particularly important when colonies are used for pollinating commercial crops where cultivation and herbicides are used for “clean cultivation” or “removal of competing bloom.” In order to have colonies populated with the most robust bees, best capable of dealing with diseases, parasites, and exposure to toxic chemicals, colonies need access to a good mix of quality pollens.

Proper nutrition is also essential for the physiological development of bees to live their intended life span. The colony's survival is contingent on a sufficient adult population to retain viability coming out of winter. Currently there is no man made supplement that can be substituted and provide for the complete dietary needs of healthy bees. Studies conducted by ARS in 2006 confirmed that artificial feeds negatively impacted the longevity of adult honey bees. Leading researchers, including Judy Chen, Eric Mussen, and Jeff Pettis, indicate that a substandard diet is the greatest “stressor” to honey bees because subsequent causes of stress such as viruses, pests, or pesticides can be exacerbated when the robustness of the bee has already been compromised by insufficient nutrition.

Honey Bees Need Larger Scale Bee Pasture

The nutritional requirements of honey bee colonies are significant. It is estimated that it takes one full comb cell of mixed pollens and another full cell of honey to rear one honey bee worker. Since honey bee colonies rear 1,000 to 2,000 replacement bees daily, it is estimated that a colony requires 50 pounds of mixed pollens for bee rearing alone each year. Another way to describe that demand is to state that on every day during the active, brood rearing season (spring, summer, fall), each colony needs to collect pollens and nectar from an acre equivalent of mixed blooming plants. Much of that need may of course be met through neighboring habitat.

Forage plants are particularly important to honey bees because they provide all the food essential for colony growth and maintenance. Nectar is used to dilute honey and liquefy the pasty stored pollen before consumption, because honey bees must drink all their food through a very small hole at the tip of their mouthparts. Besides being dehydrated and stored as honey for future consumption, nectar supplies sugars necessary for the production of beeswax from glands in worker bees' abdomens. Beeswax is used to build the combs on which the bees live and in which they rear their brood and store their food.

Honey bee colonies are much more dependent on late summer and fall blooming plants as they must over winter thousands of individuals and not just a single queen. Enough honey stores must be accumulated for sufficient honey bees to survive through the winter to the next blooming season. Therefore, special consideration must be given to encouraging plantings of late summer and fall plants to meet this critical need.

While smaller scale plantings for native bees are helpful, larger scale landscape plantings are needed to adequately meet the nutritional needs of managed honey bee colonies. By planning for sufficient resources for honey bees, other pollinators will also benefit.

Incorporate Larger Scale Forage Needs of Honey Bees into NRCS Pollinator Tech Notes

PFSP is appreciative of the ongoing efforts of NRCS in working to improve habitat for native pollinators, including through partnership efforts with Xerces and other native pollinator groups. Improving habitat for native pollinators is part of PFSP's mission, as we believe enhanced habitat is a good thing for both honey bees and native pollinators.

The "Pollinator Biology and Habitat in California" Technical Notes (TN – BIOLOGY – CA-19) recently published by CA NRCS is an important step in the right direction. However, as stated in the opening, while recommendations will also benefit honey bees and other native pollinators, the focus is on habitat for native bees. This first edition does not include information on larger scale practices for honey bee pasture.

PFSP urges NRCS to build on efforts to date which have been largely focused on native bees by embracing the forage needs of managed honey bees as a priority, and including adequate information in its conservation practice recommendations, technical notes and assistance for growers on conservation practices and plantings that will help meet the larger scale forage needs of managed honey bees. PFSP remains optimistic that continued collaborative efforts in California will result in a second edition pollinator Tech Notes that adequately integrates information about larger scale practices needed for honey bee pasture and nutrition.

Support for Increasing Forage for Ag Pollinators

A broad and diverse range of stakeholders is already on record in unified support for increasing forage in California for honey bees and native pollinators. For example, last year 24 organizations signed a petition letter to California Agriculture Secretary Kawamura supporting "*.....habitat in California for managed honeybees and other pollinators of California's agricultural crops, with the goal of 500,000 acres of additional ag pollinator habitat on and around agricultural lands.*"

PFSP believes the stated goal in the petition is realistic and achievable. There are over 110 million acres in California with some 28 million dedicated to agriculture. The goal would be to identify less than ½ percent of California's total acreage to help provide critical forage for honey bees and native pollinators.

This does not mean that acreage must be found that can be dedicated exclusively as bee pasture. Vegetation and management practices can be augmented on and near ag lands without sacrificing crop production. Pollinator habitat goals should be more manageable in other states.

CA NRCS Should Utilize New Farm Bill Pollinator Provisions to Help Managed Honey Bees

Farm bill conservation programs managed by NRCS should be utilized to the maximum extent practicable to encourage habitat development and protection for managed honey bees, pursuant to new pollinator conservation provisions in the farm bill. This new provision encourages use of all USDA conservation programs in developing habitat for native and managed pollinators, and conservation practices that benefit native and managed pollinators.

PFSP is pleased that NRCS Chief Dave White has commented publicly on several occasions that the agency will utilize the new authorities to help managed and native pollinators. Conservation Innovation Grants to support pollinator habitat project, notably including to the Gold Ridge Resource Conservation District in Sonoma County, California—which PSFP supported—are also welcome developments. Honey bees are, of course, managed pollinators; and their wellbeing is certainly critical to the future wellbeing of agriculture!

Ag pollination services are critical to the future of American agriculture. The health of honey bees can no longer be only a beekeeper problem. As humans, we want to use the bees to meet our needs, but do not take ownership for the responsibility for ensuring their wellbeing and their right to thrive. PFSP believes these services are clearly at risk if we do not take decisive action to protect and sustain honey bees, beekeepers and native pollinators. We continue to neglect this vital part of agriculture at our own peril.

PFSP stands ready to assist NRCS in identifying conservation practices that can be applied to help address the larger scale needs of managed honey bees, and to support their use in implementing the suite of USDA conservation assistance and incentive programs to help increase habitat and best management practices for managed honey bees and native pollinators.

Respectfully Submitted,

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Exhibits (3)