Monarch Collaborative and Honey Bee Health Coalition

Recommendations for enhancing honey bee, monarch butterfly, and pollinator habitat and forage in U.S. Department of Agriculture private land conservation programs

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Executive Summary

Pollinators, including honey bees, are a vital part of U.S. agriculture, and yet honey bee health faces a variety of challenges and overwintering honey bee colony losses are higher in the past decade compared to historical averages. Similarly, the eastern monarch butterfly population has experienced declines over the past two decades.

As traditional stewards of the land, farmers, ranchers and landowners are uniquely situated to establish, enhance and expand habitat and forage for the monarch butterfly, honey bees and other pollinators on a large scale. Private land conservation programs offered through the U.S. Department of Agriculture (USDA) are critical to pollinator conservation efforts, but impediments to the widespread utilization of USDA programs that support establishment of high-quality habitat for pollinators must be removed for these efforts to be successful.

The Honey Bee Health Coalition and Monarch Collaborative are diverse, public-private partnerships that support agricultural productivity and thriving ecosystems. Members of both the Coalition and the Collaborative have identified two critical priorities:

I) Improving implementation and operations of USDA private lands conservation programs; and,

II) Improving the quality and cost-effectiveness of monarch butterfly, honey bee and pollinator forage and habitat in USDA private land conservation program specifications.

To achieve these priorities with the necessary urgency and scale, members offer the following recommendations:

I. Recommendations regarding implementation and operations of USDA private lands conservation programs:

- Address barriers and disincentives to enrollment;
- Expand mechanisms to approve conservation plans by private stakeholders; and,
- Leverage public and private sectors to promote interest in conservation programs and maximize acreage against allocated levels.

II. Recommendations regarding quality and cost-effectiveness of monarch butterfly, honey bee, and pollinator forage and habitat in USDA private land conservation program specifications:

- Promote the use of milkweed species as critical to the lifecycle of monarch butterfly;
- Address existing seeding specifications and seed mixture designs that limit pollinator benefits to support diversity, cost-effectiveness and alignment with operator objectives. Planting rates, seeding recommendations and maintenance practices should create habitat that prevents opportunities for weed growth and ensures pollinator-friendly plants over the term of the contract; and,
- Increase management options and flexibility to foster conservation in concert with farm and ranch operations.

Background

The eastern monarch butterfly population has declined by more than 80 percent over the past two decades due to a variety of challenges. The recent monitoring report of the forest area occupied by monarch butterflies in 2017-2018, carried out by World Wildlife Fund (WWF) and the National Commission of Protected Natural Areas (CONANP) in Mexico, registered nine colonies of butterflies that occupied 2.48 hectares of forests, a decrease of nearly 15 percent with respect to the previous season.

Honey bees and other pollinators are a vital part of U.S. agriculture — supporting production of most of the fruits, nuts, and vegetables grown in the United States, with an approximate $19 billion in agricultural production annually. Honey bees face a variety of challenges including: poor nutrition; incidental pesticide exposure; parasites; and diseases. Overwintering honey bee colony losses have ranged from 22 percent to 37 percent over the last 11 years — compared to a historical average of 10 percent to 15 percent.

Private land conservation programs offered through the USDA can make a critical contribution to the success of pollinator conservation efforts. To help combat the decline of the monarch butterfly, the USDA launched a 10-state targeted monarch conservation effort and has enrolled acreage for pollinator conservation within the Conservation Reserve Program (CRP) and other USDA conservation programs. To help support honey bee health, the USDA launched a six-state targeted honey bee conservation effort and has enrolled acreage for bee and pollinator conservation within the Conservation Reserve Program and other USDA conservation programs. The lands enrolled in programs such as the CRP, Environmental Quality Incentives Program (EQIP), Agricultural Conservation Easement Program and Conservation Stewardship Program offer the opportunity to provide millions of acres of habitat and forage for butterflies, honey bees and other pollinator species.

The role and effectiveness of USDA private lands programs in supporting farmers' pollinator habitat conservation measures is a matter of urgent concern due to: 1) challenges faced annually by beekeepers to maintain healthy colonies to pollinate crops throughout the United States, and 2) the pending June 2019 U.S. Fish and Wildlife Service decision on the petition to list the monarch butterfly under the Endangered Species Act. Because private lands offer a critical, scalable opportunity to sufficiently increase habitat and forage, an essential way to get ahead of the listing decision and to ensure the viability of American agriculture dependent on pollination is to remove impediments to the widespread utilization of USDA programs that support establishment of high-quality habitat and forage for butterflies, bees and other pollinators. The Monarch Collaborative and Honey Bee Health Coalition are two multi-stakeholder, public-private partnerships working to help address these and other challenges to pollinator health.

The Monarch Collaborative is a multi-sector, initiative to support a sustainable population of monarch butterflies while simultaneously meeting agricultural productivity and habitat conservation goals. The Collaborative's membership spans the research community, agricultural production, conservation causes, public agencies and others working to develop collaborative solutions to address this challenge.

The Honey Bee Health Coalition is a public-private partnership that brings together beekeepers, crop producers including those associated with pollinated specialty crops (*e.g*., almonds, fruits, and vegetables) and commodity crops (*e.g*., corn, soy, canola, and wheat), agribusinesses (including seed and chemical companies), conservation groups, manufacturers and consumer-facing brands, researchers, government agencies, and other key partners to improve the health of honey bees and other pollinators in the context of productive agricultural systems and thriving ecosystems. With more than 45 member organizations, we work together on voluntary strategies across the multiple factors impacting bee health that make sense for beekeepers, farmers, conservationists and the agricultural supply chain.

Detailed Recommendations

I. Recommendations Regarding Program Implementation and Operations for USDA Private Lands Conservation Programs

1. **Encourage creation of monarch butterfly, honey bee and other pollinator habitat through consistent program adoption, enhanced information, and simplified enrollment procedures for private landowners, farmers and ranchers interested in USDA practices and programs for habitat and forage establishment.** Although landowner/land manager interest in pollinator habitat and forage establishment is growing, individuals often face several barriers and/or disincentives to obtaining information and/or enrolling in programs — these include those related to staff capacity, training and education, and enrollment procedures. These barriers and/or disincentives can be addressed by:
    - **a.** Enhancing staff capacity, knowledge and training to provide information and assistance on monarch butterfly, honey bee and pollinator practices and programs;
    - **b.** Simplifying enrollment procedures by reducing the amount of time and paperwork associated with enrollment; and,
    - **c.** Increasing availability of factsheets, trainings and other landowner educational materials on monarchs (and their larval host plant milkweed), honey bees and other pollinators, habitat and forage establishment and management practices

2. **Provide an improved mechanism for NRCS to approve conservation plans by private sector stakeholders.** Particularly given capacity issues, pollinator habitat and forage could be effectively enhanced by improving mechanisms by which private sector stakeholders could develop and implement conservation plans approved by USDA. While some mechanisms already exist, specific opportunities for improvement include: develop a mechanism and enable a process for the USDA agencies to approve (electronically if possible) conservation plans developed using Geographic Information System (GIS) software tools; define a system for benchmarking and scoring pollinator/monarch habitat, particularly in conservation plantings for water quality (possibly connecting to existing mechanisms such as the biodiversity metric in the Field to Market FieldPrint® Platform; https://fieldtomarket.org/our-program/fieldprint-platform/).

3. **Leverage the public and private sector to raise awareness of the availability and benefits of utilizing USDA conservation programs that promote pollinators to improve enrollment and maximize acreage against the level allocated by the programs.** The Collaborative and Coalition encourage USDA to work at the national, state, and county level with private stakeholders and USDA staff to raise awareness about the importance of monarchs, honey bees and other pollinators, the urgent need for habitat restoration and enhancement, and the availability of a wide variety of programs and resources to establish habitat and forage. Private sector stakeholders — including non-government organizations (NGOs), producer associations, researchers, university programs and companies — have large networks through which they can enhance outreach and increase awareness. A coordinated public-private outreach strategy with appropriate messaging on the benefits of enrollment and guidance for how to enroll in programs can help increase landowner participation.

4. **Facilitate and encourage effective communication nationally and across regions; continue stakeholder engagement and internal federal agency consultation to evaluate; and improve these conservation programs to benefit monarchs, honey bees and other pollinators.**

Continue public-private dialogue to discuss opportunities, share and evaluate results, and continuously improve USDA programs for the benefit of monarch butterflies, honey bees and other pollinators. Recognizing that unique national and/or regional issues may arise with respect to outreach, operations, technical specifications, and implementation, ongoing communications will be essential to effectively addressing these issues. Encourage USDA program offices to uniformly promote the importance of pollinator habitat and forage, cognizant of local agronomic and cultural factors and perceptions related to milkweed and pollinator-friendly forb plantings.

II. Recommendations to Enhance Quality and Cost-Effectiveness of Monarch Butterfly, Honey Bee and Pollinator Habitat in USDA Private Land Conservation Programs Specifications

1. **Strongly promote the use of milkweed species in USDA program plantings.** Milkweed and other monarch butterfly and pollinator forage plant species can be effectively incorporated into numerous USDA programs – including pollinator-specific practices as well as water quality and nutrient management practices such as buffer strips and edge-of-field technology (*e.g.*, bioreactors, saturated buffers). Promoting the use of milkweed species as well as other pollinator forage species in all practicable USDA programs is critical to enhancing monarch butterfly and pollinator habitat and forage.

2. **Allow the use of a broader range of native and introduced species adapted to a geographic area.** Allowing flexibility to evaluate a broader range of forb plant species when creating conservation program seeding mixtures can improve opportunities to create geographically-appropriate, cost-effective seed mixes that enhance pollinator nutrition and address other considerations for program success.

3. **Increase the minimum requirements for the number of pollinator-friendly forb species in all pollinator conservation programs and encourage the use of highly diverse seed mixtures.** Increasing the minimum species requirements in seed mixes will significantly increase the diversity and nutritional value of seed mixes for pollinators. An increase in the minimum required number of species — combined with allowance and use of a broader range of species in the seed mix (above) — will enable the design of diverse mixes that remain cost-effective and regionally-feasible. Recent studies indicate that mixes of 20 or more species tend to produce better establishment (Norland *et al*. 2015), support greater pollinator diversity and can be cost-effective (Otto *et al*. 2017). Many members of the Coalition and Collaborative support significant increases in minimum species requirements in pollinator conservation programs to 15 species or more.

4. **Improve the bloom period dates currently being used by USDA with the objective of having blooms from April through October.** Due to pollinator foraging needs, bloom periods should be designed to require blooms in April and May. Therefore, bloom Period 1 should more appropriately be April to May 31, Bloom Period 2 is June 1 to July 31, and Bloom Period 3 is August 1 to October 31.

5. **Allow the use of pollinator seeding mixtures designed with greater than 30 seeds per square foot.** Some programs do not allow the use of seeding mixtures with greater than 30 seeds per square foot. Allowing mixtures designed with greater than 30 seeds per square foot will provide resource professionals an option to outcompete early successional weeds.

6. **Re-evaluate the limit on the percentage of introduced flowering plants allowed in a seed mixture.** Pollinator seeding mixtures with a high percentage of introduced legumes can be used

to develop seed mixtures that are cost-effective, able to compete with early successional weeds, established quickly and offer highly nutritious forage for many pollinator species. The appropriate percentage of introduced species in a mixture will depend on the specific situation, as determined by geography as well as landowner objectives.

7. **Limit the use of grasses in pollinator mixtures at the state level; where grass is utilized, encourage less aggressive grass species that do not outcompete pollinator-friendly forbs.** While the USDA Conservation Reserve Program CP-42 (CRP-687) guidance on Native Habitat Development for Pollinators appropriately limits the percentage of grass to no more than 25% of the seeding mixture, exemptions have allowed state seeding specifications to consist of a greater percentage of grass seed. The CP-42 guidance should continue to require that no more than 25% of a seeding mixture can be comprised of grass species based on the number of seeds per square foot and limit state exemptions. In addition, grasses used in pollinator seeding mixtures should be limited to bunch grasses and not include the use of rhizomatous grass species that can outcompete flowering forbs.

8. **Encourage a broader range of establishment options in state programs.** Examples include**:** dormant seedings in autumn; establishment with a no-till drill; and discouraging the use of tillage prior to seeding in sites with known weed competition history. While current national guidance includes a variety of establishment options, state seeding specifications and recommendations unduly restrict establishment practices that produce positive pollinator habitat and forage results. National guidance that encourages a variety of establishment practices can have positive impacts for honey bees and other pollinators.

9. **Increase flexibility in CRP practices.** Examples of management options that help establish and maintain high quality pollinator habitat and forage include: prescribed fire, light disking, managed grazing, managed haying, herbicide application, inter-seeding or a combination of the above. Management of pollinator habitat and forage may require three or more years for site preparation and maintenance. However, encouraging a diversity of land management practices can help produce forage and early-successional habitat and forage that has positive impacts for monarch butterflies and other pollinators. While CRP cost-share rates for mid-contract management may not cover more intensive mid-contract practices, publicizing that cost share with non-federal funds is permissible would be helpful.

10. **Allow managed haying and grazing.** Currently, managed haying and grazing is not an option in CP-42 and CP-25 (Restoration of Rate and Declining Habitat), but it is often an option in the State Acres for Wildlife Enhancement (SAFE) (CP38; https://www.fsa.usda.gov/Internet/FSA_File/safe08.pdf), Habitat Buffers for Upland Birds Program (CP33; http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/Stelprdb111972) and other NRCS Conservation Reserve Program options. This creates an incentive for landowners to select for enrollment in Conservation Programs options other than CP-42 and CP-25. When appropriately used, managed haying and grazing can be an important pollinator habitat and forage management tool.

11. **Encourage cost-effective seed mix options as important for program participation; encourage states to adjust their seeding specifications to provide more cost-effective approaches for pollinator seeding.** The cost of seed mixes has significant impact on a producer's decision to enroll in the program, especially when a large number of acres is being enrolled. In these situations, high-cost seed mixes and seeding specifications that increase the cost of the practice can both create a barrier to participation and success. By emphasizing cost-

effectiveness in seeding specifications and offering a range of options for plants included in mixes, producers will be able to plant pollinator mixes within their budget. Importantly, reducing the required number of species is NOT an effective cost-reduction measure as it may reduce the quality and effectiveness of the pollinator mixes. Instead, adjustment of seeding specifications to include a wider range of acceptable species enables diverse and cost-effective plantings that do not compromise quality for cost.

12. **Encourage states and local offices to minimize geographic restrictions on seed sourcing for forage on agricultural lands to enable increased access to cost-effective and highly diverse seed mixtures.** Although geographic restrictions on seed sourcing are not always codified in requirements or specifications, many states in the Midwest have mileage restrictions in their seed specifications or restrictions based on local ecotype sources (for example, Nebraska, Iowa and Missouri). Where the restrictions are not formally codified, they are frequently encouraged and incorporated into seed mix recommendations. Minimizing geographic preferences for local seed sourcing for forage projects on agricultural lands would enable increased access to cost-effective and highly diverse seed mixtures. Species should still be selected based on geographic suitability; however, many species adapted from a geographic area are available for sourcing beyond the current mileage restrictions. *All seeds used in conservation programs – irrespective of geographic origin -- should be tested by reputable laboratories and labelled to avoid contamination with seed of weed or invasive species.*

13. **Provide options for stacking benefits.** Pollinator forage and habitat is not a stand-alone benefit but can be interwoven with many other benefits (soil, water, carbon sequestration, other wildlife, *etc*.).

In summary, the Monarch Collaborative and the Honey Bee Health Coalition encourage the USDA to consider and implement these recommendations to enhance pollinator forage and habitat in USDA private land conservation programs — including by improving outreach and implementation associated with these programs as well as by improving the quality and cost-effectiveness of program specifications and forage/habitat plantings. We welcome the opportunity to work with USDA managers and senior staff to urgently address these topics.

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