Managed Pollinator Protection Plan

A Wyoming Department of Agriculture Publication

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FORWARD

The Wyoming Managed Pollinator Protection Plan was developed in response to a growing need for a balanced public policy that mitigates risk to managed pollinators, while minimizing the impact of that mitigation on production agriculture. In Wyoming, the two managed pollinators that this plan addresses are honey bees (*Apis mellifera*) and the Leafcutter Bee (*Megachile rotundata*).

Reducing pollinator exposure to pesticides is ideal. Our hope is to achieve this while continuing to provide access to habitat that supports bee health and derived benefits to agriculture.

This pollinator plan is not a static document, but a work in progress. Far too little is known about the factors that may affect pollinator health. Research focusing on nutrition, bee repellants and the effects of pesticides is important. Other research into honey bee health, disease and parasite resistance and genetic diversity is also urgently needed so that more effective and comprehensive strategies can be put in place. We believe research can provide new answers and better solutions to the current dilemma.

Finally, effective communication among all parties is essential to the success of this plan. Unless we communicate freely and openly with one another, the rest of our goals cannot be reached.

Working together – farmers, beekeepers, pesticide applicators, scientists – Wyoming can protect its pollinators, while maintaining its position as a leading supplier of food, feed, fiber, and fuel for our nation and the world.

This document has been compiled in consultation with the following Associations, Agencies, and Meeting Groups:

- Wyoming Alfalfa Seed Growers Association
- Wyoming Beekeepers Association
- Wyoming Ag-Business Association
- Wyoming Weed Management Association
- Wyoming Crop Improvement Association
- Wyoming Mosquito Management Association
- Wyoming Weed & Pest Council
- Wyoming Grounds Keepers and Growers Association
- Wyoming Department of Agriculture - Technical Services Division
- University of Wyoming - Extension
- Wyoming Commercial Pesticide Applicators
- Pesticide End-User Meetings

Introduction

Wyoming grows hay, barley, wheat, dry edible beans, sugarbeets and corn. Hay is the leading crop in Wyoming in terms of value of production - $65 million in 2008. Barley had the next highest crop value in 2008, at $32 million followed by wheat at $31 million followed by corn for grain at $28 million. In addition, Wyoming has a robust alfalfa seed production industry, utilizing the Leaf-Cutter Bee for pollination purposes. Honey production beekeepers maintain over 48,000 colonies in Wyoming, with a large number of those seasonally migrating to California to pollinate the almond orchards. Over 90 percent of Wyoming is classified as being rural, it is inevitable that hives will be placed in close proximity to areas where crops are grown and pesticides are commonly used.

Managed bees and wild pollinators are important to U.S. agriculture. Over 90 crops in the U.S., including almonds, tree fruits, cotton, berries, and many vegetables, are dependent on insect pollinators, such as the honey bee, for reproduction (USDA 2013). Bee-pollinated crops account for 15 to 30 percent of the food we eat (USDA 2013). Although not completely dependent on insect pollination, crops such as canola, dry edible beans, buckwheat, and sunflowers have been shown to greatly benefit from bee pollination.

Beekeepers have suffered significant colony losses over the past decade, raising questions about the sustainability of managed colonies in the U.S. This issue has gained national attention, and in response the U.S. Department of Agriculture (USDA) created the Colony Collapse Disorder (CCD) Steering Committee in 2007. Made up of personnel from USDA's Office of Pest Management Policy, National Institute of Food and Agriculture, Agricultural Research Service, Animal and Plant Health and Inspection Service, and the Natural Resources Conservation Service, as well as staff from the U.S. Environmental Protection Agency (EPA), and public and private partners, the CCD Steering Committee was formed to look at factors contributing to bee decline.

The CCD Steering Committee hosted the National Honey Bee Health Stakeholder Conference in October 2012 to discuss multiple factors influencing honey bee health. The committee concluded that there are multiple factors impacting the decline of the honey bee in the United States and that no one factor can be blamed for the declines. These factors include pests, parasites, diseases, low genetic diversity and poor nutrition. The Steering Committee also concluded that additional research is needed to determine to what extent pesticides are contributing to the declines.

Even with significant losses by some beekeepers each year, Wyoming produced over $6.5 million of honey in 2013 (USDA NASS 2014). In addition to honey, the wax, pollen and propolis is also collected and sold in a variety of products including soaps, lotions, and novelty items such as candles.

BEES AND HONEY:
NUMBER OF COLONIES, PRODUCTION, VALUE, AND STOCKS, WYOMING, 2009-2013, U.S. 2012-2013 1/

Year	Honey Producing Colonies 2/	Production		Price Per Pound 3/	Value of Production	Stocks Dec 15 4/
		Per Colony	Total			
	1,000 Colonies	Pounds	1,000 Pounds	Cents	1,000 Dollars	1,000 Pounds
2009	37	48	1,776	143	2,540	391
2010	34	36	1,224	159	1,946	282
2011	35	54	1,890	172	3,251	265
2012	50	51	2,550	187	4,769	459
2013	47	66	3,102	211	6,545	558
U.S.						
2012	2,539	56.0	142,296	199.2	283,454	31,829
2013	2,640	56.6	149,499	212.1	317,087	38,160

1/For producers with 5 or more colonies. Colonies which produced honey in more than one state were counted in each state.
2/Honey producing colonies are the maximum number of colonies from which honey was taken during the year. It is possible to take honey from colonies which did not survive the entire year.
3/Average price per pound based on expanded sales.
4/Stocks held by producers.

Wyoming Agricultural Statistics 2014

Challenges Faced by Beekeepers

Beekeepers face a challenging task of keeping colonies alive with the threat of Colony Collapse Disorder, Varroa mites, Tracheal mites, small hive beetles, bacterial, fungal and viral diseases, declining quality forage, environmental stressors such as drought, and pesticide exposure. Year to year colony survival is variable with some beekeepers reporting losses as high as 42% in Wyoming (USDA NASS 2015).

Growers and pesticide users cannot help beekeepers manage threats from mites, beetles and the microbes that weaken their hives. They can, however, help with reducing their exposure to pesticides and improving the quality of forage available. Even though Varroa is considered the greatest threat to honey bee colonies, a strong colony can handle the pressures of this tiny creature better than one exposed to various pesticides and poor forage that weaken the hive.

Honey bees feed on pollen for their protein source, and utilize nectar for carbohydrates. They must obtain these nutrients from a variety of plants in order to obtain all the essential amino acids and nutrients required to build and maintain a strong hive. Bees can become easy targets for pests, predators and pathogens when they do not obtain the proper balance of nutrients. Bees provided with high quality forage are better able to handle stressors from all directions including pesticides.

Honey bees are commonly exposed to pesticides either intended for use in agricultural production or in an attempt by the beekeeper to rid the hives of the Varroa mite. Agriculturally-applied pesticides can impact bees from direct contact with the insect or by contaminating forage. Beekeepers worry not only about immediate lethal effects from exposure but also the more subtle sub-lethal impacts such as increased brood mortality and reduced adult longevity.

Challenges Faced by Growers

Growers face many challenges in an attempt to obtain acceptable yields. Growers contend with insect pests, diseases, weeds, drought, overland flooding and other factors that impact crop production and quality. They have a variety of pest management tools and strategies to choose from. While growers do not have to try to kill a mite on an insect, they often need to eliminate pests and competing plants without impacting yields. They also must consider the timing of pesticide applications with respect to environmental conditions (weather), harvest and rotational intervals. Even with integrated pest management systems, pests often are able to adapt quickly to different methods, rotations, or pesticides, or reproduce so quickly that they seem to explode within a short amount of time. Because of the nature of such pests, making timely chemical applications as part of an IPM plan are often essential to manage pests effectively.

Beekeepers can have difficulty finding land that will not be exposed to pesticides. Growers face difficult decisions when managing pests and minimizing impacts to pollinators. This plan should demonstrate how they can do both. Following the Best Management Practices (BMPs) within this document will help ensure abundant, affordable, safe, and nutritious food for years to come.

Challenges Faced by Pesticide Users

Pesticide users face many challenges in Wyoming. There are over 12,000 registered pesticides in Wyoming that are used to manage agricultural and non-agricultural pests. In many cases, pesticide applicators have a limited time window to make an application. Factors such as pest infestation levels, pest life stages, temperature, precipitation, wind speed, water levels, use buffers, and presence of pollinators all affect pesticide choices and decisions on when, where, and how to apply pesticides. Applicators also must pay attention to the location of sensitive sites adjacent to treatment sites, such as surface water, endangered species, organic fields, vineyards, and beehives. The ideal time to apply many of these chemicals is likely to coincide with when the pollinators are most active, putting pesticide applicators in a difficult position of balancing pest management needs and protecting pollinators.

The Plan

The goal of this plan is not to eliminate pesticide use or to ban pesticides in hives or in close proximity to hives. Instead, the goal is to bring awareness to the issues faced by all parties and find a way for everyone to be part of a solution. The following Best Management Practices (BMPs) were developed with this in mind.

The Wyoming Department of Agriculture (WDA) conducted over six (6) multi-stakeholder discussions in the past year focused on pollinator issues, and specifically the development of this state pollinator protection plan and the components contained within this document. These provided an opportunity for landowners, beekeepers, pesticide users, government officials, and other stakeholders to discuss pollinator/pesticide issues and offer input on reasonable practices that beekeepers, landowners, and pesticide applicators could do to protect pollinators and minimize impacts to livestock and crop producers.

The Pollinator Plan contains voluntary BMPs for pesticide users, landowners/growers, and beekeepers in hopes of creating the following positive outcomes:

- Ensuring positive relationships and peaceful co-existence among beekeepers, landowners, and pesticide applicators,
- Reducing pesticide exposure and subsequent risk of pesticides to pollinators,
- Ensuring both a robust apiary industry and agriculture economy, and
- Continued high compliance with state pesticide and apiary requirements.
- Outlining the available resources and tools for communication and information sharing between beekeepers and pesticide applicators.

Beekeeper BMPs (excluding Leaf-Cutter Bees)

• **Work with landowners to choose hive locations.** Ideal hive locations will have minimal impact on agricultural activities but will still have adequate access to forage and water. Avoid low spots to minimize impacts from drift or temperature inversions on hives. Give consideration to timing after rain events when determining which roads to travel. Discuss with landowners preferred roads/trails to use. Beekeepers should also request contact information for applicators, renters, and neighbors (if applicable). The Wyoming Apiary Law also requires general apiarists to maintain a two (2) mile separation between location.

• **Register the apiary locations with the Wyoming Department of Agriculture.** All apiary locations (hobbyist, landowner, general) in Wyoming are required by law to be registered with the Wyoming Dept. of Agriculture. Landowner permission to place the hives is also required by law. The registration must be approved by the WDA before the hives are placed at the site of proposed registration. It is also required that the location be provided to the Department as a Global Positioning System (GPS) coordinate. The Apiary Registration Form is available from the WDA website at http://agriculture.wy.gov/images/stories/pdf/forms/techserv/apiarylocapp.pdf

• **Be cognizant of neighboring landowners when placing and moving hives.** Neighboring landowners often use the same roads, trails, and section lines. Take appropriate steps to ensure that bees do not negatively affect operations of neighboring landowners, such as considering the proximity of hives to neighbor's yard, bins, equipment, or storage sites. Take notice of the neighboring crops as well to determine if their farming practices may affect the hives as well.

• **Work constructively with applicators when notified of upcoming pesticide applications.** One of the recommended BMPs for pesticide applicators is to contact nearby beekeepers prior to making pesticide applications. Block, move, or net hives when applicators inform you they are going to apply pesticides, or find other strategies to allow pesticide applicators to manage pests while minimizing pesticide exposure by bees.

• **Notify landowners, applicators and the Wyoming Department of Agriculture when moving hives.** If possible, notify nearby pesticide applicators and landowners when you place or move beehives. This will ensure they are aware of current hive locations and can notify you before making pesticide applications. Contact information for nearby pesticide applicators can usually be obtained from landowners. In addition, the Wyoming Apiary Law requires beekeepers to notify the WDA when hives are relocated for environmental conditions or establishing staging locations.

• **Report all suspected pesticide-related bee kills to the WDA pesticide program immediately.** Inspect bee behavior regularly. The WDA is the lead pesticide regulatory agency in the state. The WDA will respond to complaints, including collecting and analyzing the location for pesticide residues. Some pesticides degrade rapidly, and timely reporting will aid the pesticide investigation. Beekeepers can report suspected pesticide incidents by calling the WDA Hotline Message Line at 1-888-413-0114 or 307-777-7321 and asking to speak to a representative from the pesticide program.

The WDA when responding to bee kill complaints, will investigate all aspects surrounding the complaint including the landowner / grower operations and practices, beekeeper husbandry, and pesticides used within the hives by the beekeeper.

- **Laboratory Analysis For Pesticides or Pesticide Residues regarding Bee Kill Complaints.** This policy is to provide direction to Technical Services Staff and Analytical Services Staff for addressing laboratory analysis for pesticides or residues when investigating an alleged bee kill caused by pesticide applications.

1. Upon receipt of an alleged bee kill caused by pesticides, the inspector will conduct routine investigation procedures and sampling of bees for submission to the laboratory for analysis.

2. In addition to the analysis to determine if a pesticide applied by an applicator allegedly caused bee die-off, the laboratory will run analysis for the following pesticides:
   a. Coumaphos
   b. Fluvalinate
   c. Amitraz
   d. Thymol
   e. Fipronil

3. If any of the pesticide compounds or its residue as listed under 2(a), (b), or (c) is present in a bee sample submitted to the laboratory, and by analysis is determined to be in an amount that is higher than known lethal limits to bees, the following actions will be taken:
   a. The inspector will notify both parties in the complaint of the laboratory results.
   b. The beekeeper will be notified that the analysis is inconclusive in which pesticide caused the bee die-off.
   c. The inspector will note the results and actions taken in their report.
   d. The investigation will be determined to be inconclusive and no action of enforcement will take place.
   e. The case file will be closed.

4. In the event that it is discovered that the applicator or beekeeper has allegedly violated other sections of Wyoming Statute or the pesticide label, those violations shall be investigated and enforced separately of the bee kill complaint.

- **Use only registered pesticides according to the label**. When pesticide use is necessary to manage pests within hives, use registered pesticides and comply with all restrictions, precautions, and directions found on the pesticide label. Although many pesticides formulations may be the same chemical as commercially developed for use in hives and readily available, these are not labeled for that purpose. Using these products is illegal and will subject the beekeeper to investigation and potential penalties as provided for under the law. In addition, failure to comply with label directions may decrease the effectiveness of pesticides, increase the risk of adverse effects to bees, cause unsafe pesticide residues in honey and other products, and potentially lead to pesticide resistance. Contact the WDA pesticide program with any questions on pesticide labeling or to determine whether a pesticide is registered in the state.

- **Comply with all requirements of WY Apiary Law**.
    - Register all apiary (hive) locations
    - Clearly post contact information at all hive locations

Continue to provide up to date hive locations throughout the season. This ensures that all locations are accurate when applicators attempt to locate them.

- **Ensure hives are easily visible to applicators.** Hives must be visible so applicators can locate them before spraying. It is strongly suggested that hives are painted white, or a color that stands out from the surrounding area.

Leafcutter Bee BMPs

- **Quick Facts...**

- Leafcutter bees are native bees, important as pollinators.
- Leafcutter bees are not aggressive and have a mild sting that is used only when they are handled.
- Leafcutter bees cut the leaves of plants. The cut leaf fragments are used to form nest cells.
- Leafcutter bees nest in soft, rotted wood or in the stems of large, pithy plants, such as roses.

Leafcutter bees are important native insects of the western United States. They use cut leaf fragments to construct their nest cells. They often are essential pollinators of wild plants. Some leafcutter bees are even semi-domesticated to help produce alfalfa seed. However, their habit of leaf cutting, as well as their nesting in soft wood or plant stems, often attracts attention and concern.

- **Life History and Habits.** Most common leafcutter bees (*Megachile* spp.) are smaller than the common honeybee, and are somewhat darker with light bands on the abdomen. Leafcutter bees are solitary bees, meaning that they don't produce colonies as do social insects (honeybees, yellowjackets, ants, etc.). Instead, individual female leafcutter bees do all the work of rearing. This includes digging out nesting areas, creating nest cells and providing their young with food. Adult females may live up to two months and lay some 35 to 40 eggs during this time.

- **Managed Leafcutter Bees.** Leafcutter bees are managed as semi-domesticated pollinators, primarily in the Big Horn Basin region of Wyoming. The bees are used to pollinate alfalfa grown for seed as they are proven to be more efficient pollinators for this purpose than honey bees. In many cases, the landowner, grower, beekeeper and pesticide user are all the same person.

- **Annual certification, inspection of bee samples, recertification.** Under the law, no person shall import, possess or control alfalfa leaf-cutter bees in this state unless the bees are certified annually. To certify bees, a person shall file a completed application form provided

by the department together with the certification and laboratory fees. Certification and laboratory fees shall be established by the department for each pound of bees certified. After receipt of an application for certification, a sample of the total population of bees to be certified is selected by the department. The sample is then inspected in the Wyoming Leafcutter Bee Laboratory located in Powell for pathogens and parasites. If no pathogens or parasites in excess of certification standards are found, the sample is reported within certifiable limits.

• **Importation restrictions.** Prior to the importation of any bee, the importer needs to file a completed application form as required under W.S. 11-7-403(b) and arrange a date and time for inspection. Prior to certification, each bee and associated transport equipment has to remain quarantined. Leafcutter bees cannot be imported except in loose cells or as adults. No leafcutter bee can be imported in a drilled board, soda straw or other equipment (including used nesting materials) that prevents adequate inspection of the bee.

• **Restrictions on rearing, moving and trapping bees.** No person can rear any bee in a nesting material from which samples of loose larval cells cannot readily be obtained such as drilled boards or soda straws. No person is allowed to move any quarantined bee or equipment except by special permit issued by the department. No person may wild trap or attempt to wild trap bees unless that person has been issued a permit to wild trap from the WDA.

• **Protection from insecticides. S**tudies indicate that these bees are more susceptible than honey bees to most of the commonly used insecticidal materials. Some insecticides which are relatively safe for honey bees and alkali bees when used properly, appears to be hazardous to leaf-cutting bees. Because of their leaf-cutting habits they may even be harmed by pre-bloom applications of highly toxic, long lasting materials. During and after insecticide applications, the bees can be confined to their shelters with a panel. The outer boxes should be covered with a tarp to protect them from residues which might be lethal to bees sunning themselves in the morning.

• **"No Grazing" Restrictions Reminder.** The "No Grazing" Restriction applies to all pesticides (herbicides, insecticides, etc.) registered with a Wyoming 24 (c) label for use on alfalfa grown for seed. This includes, but is not limited to, the following pesticides whether or not they are used individually or in conjunction with another pesticide in a growing season: Acramite 4SC, Discipline 2EC, Assail Cerexagri-Nisso, Endura, Assail Nisso, Firestorm, Assail UPI, Fusilade DX, Basagran, Onager, Beleaf ISK, Pendimethaline, Beleaf FMC, Prowl H2O, Capture 2EC, Rimon 0.83 EC, Comite, Sonolan HFP, Dibrom 8, Supracide 2E

Grazing restrictions for all other pesticides registered for use on alfalfa seed or alfalfa are to be followed on their Section 3 labels. For example: Pirimor 50-DF " All Pirimor 50-DF treated alfalfa seed screening must be removed from the feed market." If a pesticide is registered for use on Alfalfa Seed, Alfalfa Grown For Seed, Seedling Alfalfa, Alfalfa then it can be used on alfalfa seed fields. Pesticides that are labeled for Alfalfa Grown for Forage, Forage Alfalfa, or Alfalfa for Grazing cannot be used on alfalfa grown for seed.

Landowner/Grower BMPs

- **Work with beekeepers to choose hive locations.** Ideal locations for hives will have minimal impact on farming/ranching operations, but will still allow bees to access forage and water. Communicate with beekeepers which roads/trails can be problematic when wet and any preferred traffic routes. Landowners may also want to provide contact information for applicators, renters, and neighbors (if applicable).

- **Communicate with renters about bee issues**. Renting land for agricultural production is a common practice. Landowners and renters should discuss bee issues, such as who has authority to allow bees, how long they will be allowed, and hive placement. These issues should be addressed and included when rental agreements are negotiated.

- **Communicate with pesticide applicators whose responsibility it is to look for hives, notify neighbors, etc.** When contracting with commercial pesticide applicators, make sure that there is a clear understanding of who has the responsibility to identify hive locations and communicate with beekeepers. Applicators may do this as part of their standard procedures, but some landowners may prefer to make beekeeper contacts themselves.

- **Agronomists should consider pollinator impacts when making pesticide recommendations.** Ensure that agronomists and crop consultants consider pollinator issues when making pesticide recommendations, including product choices and pesticide timing decisions.

- **Plant bee forage.** Plant flowering plants, trees, and shrubs to improve bee forage, especially in non-farmable or non-crop areas. Doing so provides forage and it may also concentrate bees away from fields to be treated with pesticides, thereby minimizing impacts to pollinators.

    - Many pesticide labels require untreated **vegetative buffer strips** around sensitive sites. Plant flowering plants in those buffer strips to provide additional bee forage.
    - If planting **cover crops**, add flowering plants into the mix. Even a small percentage of flowering plants can provide a considerable amount of forage for pollinators.

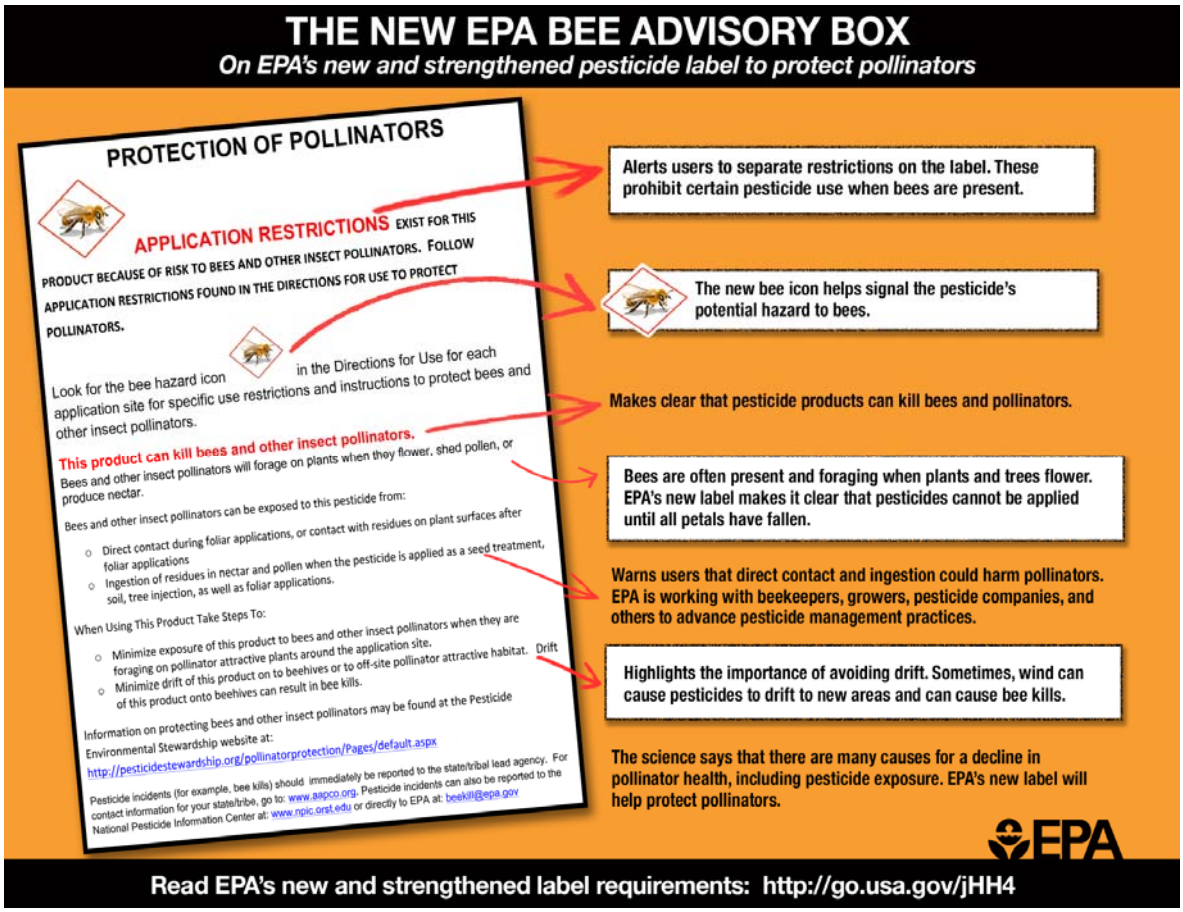
- **Utilize alternatives to talc/graphite in planters.** When planting seeds treated with insecticides, utilize alternatives to talc/graphite as they become available. The talc and graphite can abrade the insecticide treatment off of the seeds, thereby creating insecticide-containing dust that can drift onto hives and flowering plants.

Pesticide User BMPs

• **Use Integrated Pest Management (IPM).** Utilize economic thresholds and integrated pest management (IPM) to determine if insecticides are required to manage pests. When insecticides are required, try to choose insecticides with low toxicity to bees, short residual toxicity, or repellent properties towards bees.

• **Use registered pesticides according to the label.** Pesticide label language is developed to ensure that pesticides will not pose a risk of unreasonable adverse effects to human health or the environment. Failure to comply with the label not only puts humans and the environment at risk, it is also illegal. Many pesticides, especially insecticides, have use restrictions prohibiting applications when bees are foraging in the treatment area. Some labels prohibit applications when crops are blooming and require that the applicator notify beekeepers in the area prior to application. Always comply with these and other label restrictions to reduce risks. Applicators are bound by all directions, precautions, and restrictions on pesticide labeling, even when following other BMPs. Contact the WDA with any questions on pesticide label language.

• **Observe Key Pesticide Label Icons.** Pesticide labels are being required to carry specific warnings on the labels to alert the pesticide user of the risk to pollinators.



PROTECTION OF POLLINATORS

APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.

Look for the bee hazard icon  in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

This product can kill bees and other insect pollinators.

Bees and other insect pollinators will forage on plants when they flower, shed pollen, or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications
- Ingestion of residues in nectar and pollen when the pesticide is applied as a seed treatment, soil, tree injection, as well as foliar applications.

When Using This Product Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at:
http://pesticidestewardship.org/PollinatorProtection/Pages/default.aspx.

Pesticide incidents (for example, bee kills) should immediately be reported to the state/tribal lead agency. For contact information for your state, go to: www.aapco.org/officials.html. Pesticide incidents should also be reported to the National Pesticide Information Center at: www.npic.orst.edu or directly to EPA at: beekill@epa.gov

• **When possible, apply pesticides early morning or in the evening.** Pollinators are most active during daylight hours and when the temperature is over 55 degrees Fahrenheit. Apply pesticides early in the morning or in the evening when bees are less active to reduce the chances that bees will be foraging in or near the treatment site.

- Be cognizant of temperature restrictions on pesticides. The efficacy of some pesticides is reduced at certain temperatures.
- Be aware of temperature inversions when choosing the best time for applications.

• **Avoid drift.** Pesticide drift involves the off-site movement of pesticides through the air from the treatment site to adjacent areas, either in the form of mist, particles, or vapor. Drift reduces the effectiveness of the chemical applied since only part of the applied amount reaches the target. Drifting chemicals also pose a risk to non-target organisms that come in contact with the off-target residues. These insecticides can negatively affect bees and other beneficial insects by direct contact or by contaminating their forage and habitat. Drifting herbicides have the potential to further reduce quality forage available to pollinators. Contact the University of Wyoming Extension for more information on how to reduce pesticide drift.

• **Identify and notify beekeepers in the area prior to pesticide applications.** Bees will fly several miles to find quality forage. Therefore, pesticide applicators should identify and notify beekeepers within two miles of a site to be treated at least 48 hours prior to application or as soon as possible. Timely notification will help ensure ample time for the beekeeper and applicator to develop a mutually acceptable strategy to manage pests while mitigating risk to honey bees. This may include covering hives, moving hives, or choosing the time of day to apply. **Notifying beekeepers does not exempt applicators from complying with pesticide label restrictions. Many insecticide labels prohibit use if pollinators (bees) are present in the treatment area.*

The WDA provides a downloadable excel spreadsheet from the deparatment's website that provides all registered locations of bee hives in the state. This data can be installed onto most GPS devices and mapping programs. The data provided for downloading is updated annually and is only as accurate as the information provided by the beekeeper. Keep in mind that new apiary locations may be established at any time and that apiary locations are known to be relocated due to environmental conditions or other industry practices . The spreadsheet is available at the following website address: http://agriculture.wy.gov/images/stories/pdf/techserv/apiary%20list%20online%2011_25_2014.xls

• **Choose products with lower risk to bees.** Avoid dusts and wettable powder insecticide formulations. Dust and wettable powder pesticide formulations can leave a powdery residue which sticks to hairs on bees. Bees then bring the pesticide back to the hive and potentially expose the entire hive to the pesticide for an unknown amount of time. Granular and liquid formulations are safer for pollinators since granules are not typically picked up by bees, and liquids dry onto plant surfaces. Also choose products with lower residual toxicity to bees.

Supporting Pollinator Forage & Habitat

- **Bee Forage**. Everyone can plant forage for bees. Plants that support pollinators are also beneficial for other wildlife, are often visually attractive, and can help improve soil health. Flowers often come to mind when thinking about bees, but bees also utilize trees, shrubs, and other less-noticeable plants for pollen and nectar sources. It is important to consider diversity when choosing plants to ensure adequate forage for the entire growing season. Diversity will also ensure pollinators have access to all of the nutrients they require to be healthy. Here are some easy, efficient ways to improve pollinator forage.

    - **Municipalities** can plant trees, shrubs and flowers that provide good forage for all types of pollinators. Diversity is important, the pollen and nectar of each species carries a different nutrient load for the pollinators. This can be worked into new plantings, every time a plant is added/replaced choose a variety that will contribute to pollinator forage. Foraging honey bees are typically not aggressive.

    - **Counties** can create bee forage along secondary roads. Secondary road ditches often contain several species of plants that provide forage for pollinators. It is a common practice to mow ditches for the safety of motorists and to prevent drifting snow. Consider spot spraying noxious weeds and mowing ditches later in the year to ensure that bee forage is available. Incorporate short forbs into secondary road ditches to minimize attracting large wildlife.

    - **Homeowners** can put out flower pots, create flowerbeds, plant trees or shrubs, or establish gardens to provide forage. Homeowners should also take special precaution when applying pesticides. The pesticide user BMPs apply to anyone using pesticides. Remember, the pesticide label is the law and it is in place to minimize risk to the environment and human health.

- **Create habitat for beneficial, wild pollinators.** Roughly 70 percent of native bees nest in the ground. They burrow into areas of well-drained, bare, or partially vegetated soil. Other bees nest in abandoned beetle houses in snags or in soft centered, hollow twigs and plant stems. Bees will also utilize dead trees and branches. Habitats can be created by leaving deadfalls and brush piles as nesting habitat. Consider the type of habitat you wish to create and pollinators you want to attract. Be cognizant that certain structures might attract other animals such as fox, coyote, skunks, and porcupines.

- **Public land access**. Public land typically does not incorporate crop production and large scale insecticide use. There are some agencies that allow beekeepers to place honey bees on state and federal lands. Contact WDA for more information. Permission must be obtained and locations placed on state or federal lands also need to be registered with the WDA.

Future Strategies and Additional Information

• **Interactive Mapping.** The WDA is developing an online interactive map of the apiary locations across the state. The map will use the provided GPS data to mark the locations, which will display the beekeeper's name and phone number when the cursor is hovered over the pinpoint. This will be posted to the WDA website when finalized.

• **U.S. Environmental Protection Agency Pollinator Protection Website:** http://www2.epa.gov/pollinator-protection

Attachments:

- Apiary Law
- Leafcutter Bee Law
- Environmental Pesticide Control Act
- National Strategy

Statutes:

Apiary Registration and Inspection

Regulations:

Chapter 55 – Apiary Registration Regulations

APIARY REGISTRATION AND INSPECTION

ARTICLE 1 - GENERAL PROVISIONS

11-7-130. Short title.

This chapter may be cited as the "Wyoming Apiculture Act".

11-7-131. Definitions.

(a) As used in this chapter:

(i) "Apiary" means a place where one (1) or more colonies of bees or one (1) or more hives containing honeycombs or bee combs are kept;

(ii) "Bee diseases" means American or European foulbrood, sacbrood, bee paralysis or other disease or abnormal condition of the egg, larval, pupal or adult stages of bees, including bee parasites and bee pests;

(iii) "Bees" means any stage of the life cycle in the genus Apis;

(iv) "Colony" means the bees, hive and all equipment used in connection with the hive;

(v) "Comb" means the brood chamber used by the queen for the protection of brood;

(vi) "Department" means the department of agriculture;

(vii) "Equipment" means hives, supers, frames, veils, gloves or any apparatus, tools, machines or other devices used in the handling and manipulation of bees, honey, wax and hives and includes any container of honey and wax which may be used in an apiary or in transporting bees and their products and apiary supplies;

(viii) "Family unit" means two (2) or more persons living together or residing in the same dwelling, house or other place of residence;

(ix) "General apiary" means any apiary other than a pollination apiary, landowner apiary or hobbyist apiary;

(x) "Hive" means a frame hive, box hive, box, barrel, log gun, skep or other receptacle or container or a part of a container, natural or artificial, which may be used as a domicile for bees;

(xi) "Hobbyist apiary" means an apiary owned by a hobbyist beekeeper;

(xii) "Hobbyist beekeeper" means a person who owns a total of not more than five (5) hives;

(xiii) "Landowner" means the person who has the actual use and exclusive possession of the land upon which a landowner apiary is to be registered, except that a person leasing or renting land for the primary purpose of locating or establishing an apiary thereon is not considered a landowner;

(xiv) "Landowner apiary" means an apiary owned by a landowner as defined in this section;

(xv) "Person" means any individual, association, partnership or corporation;

(xvi) "Pollination apiary" means an apiary operated for pollination of commercial seed, fruit or other commercial agricultural product as provided in W.S. 11-7-203;

(xvii) "Queen apiary" means an apiary or premises in which queen bees are reared or kept for sale or gift;

(xviii) "Bee parasites" means mites, including but not limited to varroa mites and tracheal mites;

(xix) "Bee pests" means insects, including but not limited to small hive beetles and red imported fire ants;

(xx) "General beekeeper" means a person who owns more than five (5) hives and manages and operates the bees and the hives;

(xxi) "Global positioning system or GPS" means a device that provides accuracy in positioning using latitude and longitude coordinates;

(xxii) "Holding yard" means an area where colonies are temporarily placed prior to leaving the state or returning from pollination in another state;

(xxiii) "Spray yard" means a temporary location where colonies are moved prior to any pesticide application in the area of the beekeeper's registered location.

11-7-132. Disposition of fees.

Registration and inspection fees collected under this chapter shall be transmitted by the department to the state treasurer for deposit in the general fund.

11-7-133. Penalties.

Any person who violates any provision of this chapter is guilty of a misdemeanor and upon conviction shall be fined not more than five hundred dollars ($500.00) or imprisoned in the county jail for not more than six (6) months, or both. Each day the violation continues constitutes a separate offense.

ARTICLE 2 - REGISTRATION

11-7-201. Apiary registration; procedure; information; conditions; penalties.

(a) Any person who owns or possesses any class of apiary in this state shall register that apiary with the department before April 1 of each year.

(b) Application for registration shall be made to the department on forms it prescribes and furnishes and shall include:

(i) The applicant's name and address;

(ii) The total number of colonies of bees the beekeeper owns;

(iii) The location of the apiary, setting forth specifically the location by sectional division to the nearest quarter section, the township and range and the latitude and longitude coordinates, or if within the corporate limits of a municipality, the number of the lot and block in the municipality including street address and the latitude and longitude coordinates determined using GPS. All new registrations shall include latitude and longitude coordinates. Effective July 1, 2012, latitude and longitude coordinates shall be required for all apiary registrations;

(iv) The name of the owner, renter or occupant of the land on which the apiary is located and, if the application is for an apiary being registered for the first time, it shall also show that the owner, renter or occupant of the land has consented to the apiary being located on his land;

(v) The date the apiary was first established which shall be included for each location on yearly apiary renewal applications; and

(vi) The class of apiary registration for which application is being made.

(c) Upon receipt of the application and payment of the fees, the department may issue a certificate of registration for an apiary, setting forth:

(i) The name of the owner;

(ii) The specific location of the apiary; and

(iii) The class of apiary authorized.

(d) In issuing certificates of registration for apiaries, if there is a conflict between applicants with respect to location, the department shall give preference to the applicant having the oldest, continuous apiary registration.

(e) Certificates of registration shall not be issued for new apiaries which are within such close proximity to established registered apiaries that there is danger of spread of bee diseases, bee

parasites or bee pests or that the proximity may interfere with the proper feeding and honey flow of established apiaries.

(f) Each apiary registrant shall post in a conspicuous location at or near each apiary he owns legible evidence of registration, including his name and telephone number.

(g) The department shall notify each registrant of his delinquency, if that registrant fails to reregister by April 1 of each year. The notification shall be by certified mail and is sufficient if deposited in a United States post office or mail box at least ten (10) days before May 1 and addressed to the registrant at his last address appearing in the department's apiary registration files. Any apiary registration which has not been received by May 1 of each year is forfeited and all rights under the registration terminate.

(h) Any person who owns or possesses any bees, hives, colonies or beekeeping equipment in this state or who owns or possesses an apiary in this state and who fails or refuses to register that apiary as provided in this chapter is guilty of a misdemeanor and upon conviction thereof is subject to the penalties set forth in W.S. 11-7-133.

(j) Repealed By Laws 2010, Ch. 14, 3.

11-7-202. General apiary registrations.

(a) In order to control, limit and prevent the spread of bee diseases, bee parasites or bee pests among bees, hives and apiaries and to control, limit and prevent interference with proper feeding and honey flow of established apiaries, general apiaries registered to different persons shall be located at least two (2) miles apart, except as otherwise provided in this article. The department shall not register or issue a certificate of registration for any general apiary that is located less than two (2) miles from a general apiary registered to another person, except as otherwise provided in this section.

(b) Any person may register a general apiary that is situated less than two (2) miles from another general apiary he has registered, if the location of the general apiary being applied for is at least two (2) miles from general apiaries registered to other persons.

(c) A general apiary may be registered even though it is less than two (2) miles from any registered pollination apiary, landowner apiary or hobbyist apiary.

(d) A person with an existing apiary that is located less than two (2) miles from an existing general apiary registered to another person may register his apiary as a general apiary under the following conditions:

(i) His apiary is established and registered with the department as a general apiary under the department's rules in effect prior to December 31, 2009; and

(ii) The registration of his apiary has not been forfeited or abandoned.

11-7-203. Pollination apiary registrations.

(a) The department may grant pollination apiary registrations to commercial seed and fruit producers or other commercial agricultural producers under the following conditions:

(i) The applicant must own, lease or rent the land upon which the pollination apiary is to be located and the applicant must use the land for the purpose of growing a commercial seed, fruit or other crop which is dependent upon bees or other insects for pollination;

(ii) The applicant does not own the bees or the hives which are to be placed upon the pollination apiary;

(iii) The only purpose of the apiary is to pollinate a commercial agricultural crop;

(iv) The applicant shall provide the department with all pertinent information necessary to determine if pollination apiaries are needed to pollinate the applicant's crop adequately;

(v) The department may refuse to register a pollination apiary based upon its own investigation of the matter, but if the department approves the application, it shall specify the number of hives and location of pollination apiaries needed for the purpose of pollinating the applicant's commercial agricultural crop adequately; and

(vi) A copy of the pollination contract between the seedgrower and beekeeper shall be sent to the department.

(b) A pollination apiary registration is valid only for the time period the department specifies, and all pollination apiaries shall be removed within two (2) weeks after the end of the bloom period of the crop to be pollinated.

(c) No certificate of registration of a pollination apiary may be leased, assigned or transferred and no person other than the pollination apiary registrant may exercise in any way any rights or privileges authorized by the certificate of registration.

11-7-204. Landowner apiary registrations.

(a) The department may grant landowner apiary registrations under the following conditions:

(i) The applicant shall be a landowner, as defined in W.S. 11-7-131(a)(xiii) and shall own the land upon which the apiary will be located;

(ii) The applicant shall own the bees and the hives that will be placed on the apiary; and

(iii) The applicant shall personally manage and operate the bees and the hives.

(b) No certificate of registration of a landowner apiary shall be leased, assigned or transferred and no person other than the landowner apiary registrant shall exercise in any way any rights or privileges authorized by the certificate of registration.

11-7-205. Hobbyist apiary registrations.

(a) The department may grant hobbyist apiary registrations to hobbyist beekeepers under the following conditions:

(i) The applicant shall not own a total of more than five (5) hives, and all of the hives must be placed on the hobbyist apiary;

(ii) The applicant shall own the bees and the hives and shall personally manage and operate the bees and the hives;

(iii) Only one (1) hobbyist registration is allowed an applicant and only two (2) hobbyist apiary registrations are allowed a family unit; and

(iv) If the department determines that too many hobbyist apiaries are being registered within too close proximity of each other or of other established apiaries so that there is danger of the spread of bee diseases, bee parasites or bee pests among bees or apiaries or that there will be interference with the proper feeding and honey flow of established apiaries, the department may refuse to grant any further hobbyist registrations in the locality and area of the danger.

(b) No certificate of registration of a hobbyist apiary may be leased, assigned or transferred, and no person other than the hobbyist apiary registrant may exercise in any way any rights or privileges authorized by the certificate of registration.

11-7-206. Restrictions on apiary locations.

Pollination apiaries, landowner apiaries and hobbyist apiaries may be located less than two (2) miles from pollination apiaries, landowner apiaries, hobbyist apiaries and general apiaries registered to other persons. General apiaries may be located within two (2) miles of one another only under the provisions of W.S. 11-7-202.

11-7-207. Changing locations; enlarging or selling apiaries.

(a) No owner of an established registered apiary shall change the location of the apiary without first receiving from the department authorization to establish the new apiary. In making the application, the owner shall specify the location of the apiary with the same particularity as in the application for original registration. If the new apiary is not used according to W.S. 11-7-211, the certificate of registration lapses and all rights under the registration terminate. Registrations for new apiaries shall not be issued for greater areas than the applicant can show are reasonably necessary for his needs consistent with good beekeeping practice.

(b) A registered apiary may be sold or transferred to a purchaser subject to applicable provisions of this chapter if all bees and equipment on the apiary are sold to the purchaser.

(c) No person may increase the number of hives on an apiary to exceed the number of hives consistent with good beekeeping practices authorized by his certificate of registration for that apiary, except that a person may increase the number of hives on a general apiary beyond the number authorized by the certificate of registration in order to protect his bees and hives from bears or other predators. A person may also enlarge a general apiary during the spring buildup and in the fall after the end of the honey season in order to gather his bees for shipment out of the state or to winter his bees on that apiary.

11-7-208. New locations; evidence of owner's or manager's permission.

Any person registering a new location for the first time shall have the approval signature of the landowner or manager thereof indicating that the landowner has given permission to place an apiary on his property.

11-7-209. Minimum number of colonies.

All registered bee locations must consist of not less than ten (10) colonies of bees during a minimum of forty-five (45) or more continuous days during any part of normal buildup or honey producing period of the year. This provision does not apply to beekeepers who own a total of less than five (5) colonies of bees registered in only one (1) apiary.

11-7-210. Normal buildup and honey producing season; registration time; voiding registration.

(a) The normal buildup and honey producing season begins on May 1 and continues through September 30.

(b) The regular registration time consists of the months of February through April.

(c) The established way for voiding the registration of an apiary shall be initiated and completed by January 31 during the same registration year that the apiary was not in use.

11-7-211. Forfeit of registration; termination of rights; disposition of equipment.

(a) The registration of an apiary which is not stocked with bees during at least forty-five (45) continuous days of the normal buildup or honey producing season is forfeited and all rights under the certificate of registration terminate.

(b) An apiary not regularly attended in accordance with good beekeeping practice, which comprises a hazard or threat to disease control in the beekeeping industry or which by reason of its physical condition or construction cannot be inspected, may be considered an abandoned apiary and may be seized by the department. Any diseased equipment or equipment which by reason of its physical condition or construction cannot be inspected may be burned, and any

remaining equipment may be sold at public auction. Proceeds, after the cost of the sale is deducted, shall be returned to the former owner or his estate. Before burning or selling any equipment, the department shall give the owner or person in charge a written notice at least five (5) days before the burning or sale. The notice shall be given by certified mail or personal service upon the owner or person in charge of the property. If the owner or person in charge cannot be located, a certified letter sent to the owner's last address registered with the department is sufficient notice under this section.

11-7-212. Registration fees.

(a) Each year before a certificate of registration may be issued for an apiary, the owner or applicant for the certificate shall pay the department a registration fee in the amount authorized by W.S. 11-1-104, with the exception of those apiaries classified as hobbyist apiaries, which will be issued a nonfee certificate of registration.

11-7-213. Holding yard apiary location.

(a) The department may grant a certificate of registration for a temporary holding yard location to provide an area for holding hives prior to and after returning from pollination of a commercial agricultural crop in another state.

(b) A temporary holding yard location shall not be used for planned honey production.

(c) A general beekeeper shall provide the department location information for all temporary holding yard locations by designating the yard name and latitude and longitude coordinates which shall be included on the yearly renewal application and designated with "HY" for holding yard, as the authorized class.

(d) A colony may be held at a temporary holding yard location for not more than two (2) months during the spring and for not more than two (2) months during the fall.

11-7-214. Spray yard apiary location.

(a) The department may grant a certificate of registration for a spray yard apiary location to provide an area for holding hives during pesticide application to allow a safe haven for the health and safety of the bees.

(b) A spray yard apiary location shall not be used for planned honey production.

(c) Any hive shall not be held at a spray yard apiary location for more than sixteen (16) days after any pesticide application and the hive then shall be returned to the registered location.

(d) A general beekeeper shall notify the department or the apiary inspector when hives are moved to spray yard apiary locations.

11-7-215. Variance agreements.

(a) Upon request from a general beekeeper, the department may enter into a variance agreement with the general beekeeper because of drought conditions, crop rotation, conservation reserve program acres or other unforeseen circumstances adverse to a yard location.

(b) Following a thorough investigation of each request under subsection (a) of this section, the department shall determine whether or not to enter into the requested variance agreement. If granted, a variance agreement shall contain an expiration date, after which the bees shall be returned to the original registered location. Failure to return the bees to the original registered apiary location shall cause that registered apiary location to be forfeited.

(c) Signed copies of a variance agreement between a beekeeper and the department shall be on file in the department's Cheyenne office and with the area apiary inspector and the beekeeper.

ARTICLE 3 - INSPECTION AND CERTIFICATION - APIS BEES

11-7-301. Apiaries; powers and duties of the department.

(a) To prevent the spread of bee diseases, bee parasites or bee pests among bees and apiaries, to protect apiaries against depredation by wildlife and to assist law enforcement agencies in an effort to alleviate losses due to theft, the department may:

(i) Order the transfer of colonies of bees from hives or containers which cannot be properly examined for brood or other bee diseases, bee parasites or bee pests to other hives or containers;

(ii) Order disinfection of any bee, beehive, brood comb or any other equipment which is infected or contaminated and burn any infected or contaminated bee, beehive, brood comb or any other equipment if, in its judgment, disinfection will not remove the infection or contamination. Before burning any property, the department shall give the owner or person in charge a written notice at least ten (10) days before the date on which the property will be burned. The notice shall be given by certified mail or personal service upon the owner or person in charge of the property;

(iii) Quarantine any apiary where foulbrood or any contagious or infectious bee diseases, bee parasites or bee pests are present and, during the quarantine, prevent the removal from the apiary of any bees or equipment except under a special permit issued by the department permitting the removal under conditions it prescribes. A person may not sell or offer for sale any apiary, bees or equipment which are under quarantine unless the department issues a permit authorizing the sale or removal. Written notice of quarantine shall be posted by the department, owner or person in charge at the quarantined apiary at a conspicuous place, and a copy shall be personally served or sent by certified mail to the owner of the apiary or person in charge. The quarantine continues in effect until it is ordered removed and a copy of the removal order served in the same manner;

(iv) Inspect any apiary, hives, equipment or premises for the presence of bee diseases, bee parasites or bee pests. Hives belonging to persons owning apiaries within the state shall be inspected for contagious diseases according to schedules established by the department. Apiary inspectors shall establish the date for the inspection of any apiary with the beekeeper. The inspection date shall be agreeable to the inspector and the beekeeper and shall include a total of seven (7) consecutive days upon which the inspection can be undertaken due to weather and unforeseen circumstances. Any beekeeper responsible for an apiary who refuses an inspection on any of the seven (7) agreed upon dates is subject to penalties provided pursuant to W.S. 11-7-133;

(v) Order the hives within an apiary which is not legally registered with the state to be confiscated. The owner of the apiary shall be notified at least seven (7) days prior to the date of confiscation. Notification shall be by certified mail addressed to the last known address of the owner or by personal service upon the owner;

(vi) Promulgate and enforce rules adopted to carry out the purpose of this chapter;

(vii) Enter into agreements with the game and fish commission as necessary to protect bees and hives against wild animals;

(viii) Assist any sheriff, peace officer or district attorney in any county in the discharge of their duties or investigations relating to the apiary industry.

(b) Any owner of bees possessing more than fifty (50) colonies shall furnish one (1) helper to assist the inspector. Apiary inspectors may inspect bee colonies at any time without previous notice.

(c) Any person failing to comply with a rule, order or provision of a quarantine pursuant to this section is subject to penalties provided in W.S. 11-7-133.

11-7-302. Importation of bees, combs or hives.

(a) A beekeeper shall notify the department and request an inspection to be conducted at any specified registered location or holding yard not later than fourteen (14) days after entry of any colony into this state. Following an inspection for colony health, the department may issue an export certificate for any colony imported into Wyoming. An export certificate is valid for one (1) year and allows export from and re-entry into Wyoming at any port of entry.

(b) Bees shipped on combless packages or in packages on new frames and new foundation are not prohibited.

(c) Comb honey in sections intended for human consumption is not prohibited.

(d) All package bees shipped into Wyoming shall be accompanied by an affidavit stating that no honey has been used for food in transit. It is unlawful for anyone shipping queen bees in cages into this state to use any honey for queen cage foods.

(e) If an official Wyoming apiary inspector finds that any bees imported into the state have infectious or contagious diseases within fourteen (14) days after arrival, the apiary inspector shall destroy the diseased bees and equipment.

CHAPTER LV

STATE OF WYOMING
APIARY REGISTRATION REGULATIONS

Section 1. Authority. Pursuant to the authority vested in the Department by virtue of W.S. 11-2-202(a)(vi), and W.S. 16-3101 through 16-3-115, the following rules and regulations pertaining to the registration of apiaries are hereby promulgated and adopted.

Section 2. Definitions. Terms used in these regulations are in addition to those set forth in W.S. 11-7-131 1983, as amended. The following terms shall have the meaning stated below:

(a) Apiary location means the geographical location as designated by the legal-land description required for apiary registrations under W.S 11-7-201(b)(iii).

(b) Disputed location means any apiary location which is contested by one (1) or more beekeepers or the Department.

(c) Registered apiary location means an apiary location that has met all applicable requirements for registration as required by the Wyoming Apiary Law and for which a certificate of registration has been issued.

(d) Unregistered apiary location means a location that has not met all applicable requirements for registration as required by the Wyoming Apiary Law and for which NO certificate of registration has been issued.

Section 3. Apiaries Placed on Unregistered Locations or Within Two (2) Miles of an Existing Registered Apiary.

(a) If any location is disputed, no registration will be issued for the location until a formal hearing is conducted.

(b) Upon receipt of a complaint that an apiary is unregistered or is within two (2) miles of an existing registered apiary, the Department will issue the owner of the apiary, written notice specifying the cause of the complaint. Such notice shall:

(i) Establish a date for a formal hearing, to resolve the matter raised by the complaint.

(c) If on or before the date set for hearing, the respondent establishes to the satisfaction of the Department that he has:

(i) submitted a proper registration application for the apiary and received approval for that apiary, or

(ii) Moved the apiary to a registered location, or

(iii) Removed the apiary from the statethe complaint shall be dismissed.

(d) If the Department receives no response from the respondent, the Department may, following a hearing to establish the matter alleged, issue an order in default.

(e) On the basis of the evidence produced at any hearing, the Department shall make findings of fact and conclusions of law and enter an order thereon. The Department shall give written notice of such order to the respondent and to such other persons as shall have appeared at the hearing and made written request for notice of the order. If the respondent does not comply with the order and make the necessary corrections, the Department will bring an action to enforce its order.

(f) All hearings will be conducted according to the Wyoming Administrative Procedures Act and rules adopted by the Wyoming Department of Agriculture.

Section 4. Penalties.

(a) W.S. 11-7-201(h) provides that failure or refusal to register an apiary as required by statute is a misdemeanor punishable by a fine of not more than five hundred (500) dollars or imprisonment for not more that six (6) months or both. The Department will cooperate with county and district attorneys in the prosecution of offenses under W.S. 11-7-201(h).

Statutes:

Leaf Cutter Bees

Regulations:

Chapter 50 – Regulations Pertaining to Leaf Cutter Bees

ALFALFA LEAF-CUTTER BEE

11-7-401. Definitions.

(a) As used in this act:

(i) "Bee" means any stage in the life cycle of a bee of the species Megachile rotundata (F), commonly known as the alfalfa leaf-cutter bee;

(ii) "Certification" means the process of analyzing bees and equipment by the department to determine whether they meet the required health standards;

(iii) "Department" means the department of agriculture;

(iv) "Equipment" means trays, incubators, cell removers, tumblers and other apparatus used in rearing bees excluding nesting materials;

(v) "Nesting materials" means shelters, laminates, polyblocks, drilled boards or any other product which leaf-cutter bees actually use for nesting;

(vi) "Parasite" means an organism living in or on any stage of the alfalfa leaf-cutter bee obtaining nutriment from the body of the bee or nesting material;

(vii) "Pathogen" means an organism, parasite or otherwise, that causes disease in the alfalfa leaf-cutter bee;

(viii) "Wild trap" means to trap bees on property not owned by the trapper;

(ix) "This act" means W.S. 11-7-401 through 11-7-407;

(x) "Sanitization" means any treatment including iodine, heat, chlorine or any other method approved by the department.

11-7-402. Duties and powers of department.

(a) The department shall:

(i) Administer this act;

(ii) By rule or regulation adopt minimum standards for the presence of pathogens and parasites in bees to be certified, imported and possessed or controlled in this state;

(iii) Whenever it has reasonable cause to believe a person is in possession of any diseased or parasitized bee or equipment or otherwise possesses any bee or equipment in violation of this act or rules adopted under this act, order a quarantine of the suspected bees or equipment and

may require any person in possession of such bees to hold them under specified conditions until notified otherwise in writing;

(iv) Release any quarantine or order to hold bees upon a finding that the bees and equipment are possessed in compliance with this act.

(b) The department may:

(i) Enter into agreements with other governmental agencies or private associations in carrying out the provisions of this act;

(ii) Enter upon any public or private premises to inspect and sample bees or equipment that may be diseased or parasitized;

(iii) Quarantine any bees or equipment found to be infected with pathogens or parasites at a level exceeding certification standards;

(iv) Order the sanitization or destruction of any bees or equipment that is infected with parasites or pathogens and that does not meet certification standards.

11-7-403. Annual certification; application; inspection of sample; recertification; fees.

(a) No person shall import, possess or control alfalfa leaf-cutter bees in this state unless the bees are certified annually under this section.

(b) To certify bees, a person shall file a completed application form provided by the department together with the certification and laboratory fees. Certification and laboratory fees shall be established by the department for each pound of bees certified. The applicant must provide at least the following:

(i) Name and place of residence;

(ii) The general location and number of bees to be registered; and

(iii) Other relevant information as required by department regulation.

(c) After receipt of an application for certification, a sample of the total population of bees to be certified shall be selected by the department or its agent in a manner prescribed by the department. The sample shall be inspected for pathogens and parasites. If no pathogens or parasites in excess of certification standards are found, the sample shall be reported within certifiable limits.

(d) When the department receives a completed application form, a certification fee and a report that the sample is within certifiable limits, it shall issue a certificate for the bees.

(e) The department shall specify the date by which any applicant must apply for recertification the following year.

(f) Fees collected under this act shall be deposited into a separate account and expended for administration and enforcement of this act. In administering and enforcing the provisions of this act, the department, by a separately negotiated agreement with another governmental agency or a private association as authorized by W.S. 11-7-402(b)(i), may make the fees available for expenditure by that agency or association. Any such agency or association shall be required to submit an annual budget to the department for its review and approval prior to the expenditure of any funds under this section.

11-7-404. Importation restrictions.

(a) No bee shall be imported into this state except under the provisions of this section.

(b) Prior to the importation of any bee, the importer shall file a completed application form as required under W.S. 11-7-403(b) and arrange a date and time for inspection.

(c) Prior to certification, each bee and associated transport equipment shall be quarantined.

(d) No bee shall be imported except in loose cells or as adults. No bee shall be imported in a drilled board, soda straw or other equipment that prevents adequate inspection of the bee.

(e) A representative sample of the population of bees imported shall be inspected as the basis for certification.

(f) No person shall import used nesting materials.

(g) No bee shall be certified unless all other requirements for certification under W.S. 11-7-403 are met.

(h) Used metal or plastic equipment may be imported with prior written notice to the department. Used equipment shall be sanitized prior to entry into this state and immediately after entry as provided by W.S. 11-7-401(a)(x).

(j) Any person not already owning or having leaf-cutter bees in Wyoming who imports leaf-cutter bees for the first time into an area where no leaf-cutter bees have previously been placed by that person shall meet the standards for unconditional leaf-cutter bee certification established by rules and regulations adopted by the department.

11-7-405. Restrictions on rearing, moving and trapping bees; permits; fees.

(a) No person shall rear any bee in a nesting material from which samples of loose larval cells cannot readily be obtained such as drilled boards or soda straws.

(b) No person shall move any quarantined bee or equipment except by special permit issued by the department.

(c) No person may wild trap or attempt to wild trap bees unless that person has been issued a permit to wild trap in accordance with rules adopted by the department.

(d) The permits under subsections (b) and (c) of this section shall be issued under rules adopted by the department. The department shall by rule establish a reasonable fee for each permit.

11-7-406. Penalty.

Any person who violates this act is guilty of a misdemeanor punishable by a fine of not more than seven hundred fifty dollars ($750.00). Each day a violation of this act continues is a separate offense.

11-7-407. Laboratory authorized; fees for services.

The department may develop and maintain a laboratory at the University of Wyoming agriculture extension center at Powell to provide analytical services required under this act and may authorize the laboratories to provide services to persons possessing bees or equipment by charging a fee equal to the cost of providing those services.

Chapter 50

REGULATIONS PERTAINING TO LEAF-CUTTER BEES

Section 1. Authority. Pursuant to the authority vested in the Department of Agriculture by WYO. STAT. § 11-7-402, the following regulations pertaining to the leaf-cutter bees are hereby promulgated and adopted.

Section 2. Definitions.

(a) "Area" means the farm or property owned by or leased to the owner of the alfalfa leaf-cutter bees or a seed grower who contracts for bees to pollinate alfalfa.

(b) "Department" means the Wyoming Department of Agriculture.

Section 3. Standards for Certification. (% to be determined by lab analysis.)

(a) Unconditional Alfalfa Leaf-cutter Bee Certification - Bees that have been officially examined and analyzed and found to contain no more than 10% composite infestation by the parasites listed in Section 3 (c)(i)(A) below; and which contain no infestation by the pathogens listed in Section 3 (c) (i)(B), below.

(b) Restricted Alfalfa Leaf-cutter Bee Certification - Bees that are officially reported as containing composite parasite infestation levels of 10% through 25%, or composite pathogen infestation levels of not more than 10%, shall be designated as being restricted certification.

(c) Quarantined Alfalfa Leaf-cutter Bee Certification - Bees that are officially reported as containing composite parasite infestation levels of more than 25%, or composite pathogen infestation levels of more than 10% shall be designated as being under Quarantined Certification. Alfalfa Leaf-cutter Bees and all associated nesting material and other equipment shall be quarantined and restricted to the landowner's or bee owner's area. Quarantined bees and equipment may be used only at the locations they were used when put under Quarantined Certification. Treatment, sterilization, or other methods of recognized control shall be performed by the bee owner before said bees and equipment can be used for pollinating. Quarantined Certification for two successive years shall result in an order for destruction of larvae or removal from the State.

(i) Parasites and Pathogens that the bees are to be specifically examined for are:

(A) Parasites

(I) Minute Chalcid (Tetrastichus megachi)
(II) Sapyga wasp (Sapyga pumila)

(III) Canadian Chalcid (Pteromalus venustus)

(IV) Imported Chalcid (Monodontomerus obscurus)

(V) Checkered Flower Beetle (Trichodes ornatus)

(VI) Giant Flower Beetle (Tribolium brevicornis)

(VII) Sunflower Beetle/Longtongues blister beetle (Nemognatha lutea)

(VIII) Driedfruit Moth (Vitula edmandsae)

(IX) Indian Meal Moth (Plodia interpuntella)

(X) Cadelle Beetle (Tenebriodes maurintanicus)

(XI) Blister Beetle (Epicauta normalis)

(B) Pathogens

(I) Alfalfa Leaf-cutter Bee Chalkbrood (Ascosphaera sp.)

Section 4. Importation and Movement of Leaf-cutter Bees within the State of Wyoming.

(a) Bees imported into Wyoming which meet the standards for Unconditional Alfalfa Leaf-cutter Bee Certification set forth in Section 3 (a) may be moved into any area within the State of Wyoming.

(b) Bees meeting the standards for Restricted Alfalfa Leaf-cutter Bee Certification set forth in Section 3(b) may be moved into any area in which bees designated as being under Restricted Alfalfa Leaf-cutter Bee Certification are located within the State of Wyoming.

(c) Bees meeting the standards for Quarantined Alfalfa Leaf-cutter Bee Certification shall not be moved from the landowner's or bee owner's area within the state as described in Section 3 c. No special permit to move bees or equipment under quarantined Alfalfa Leafcutter Bee Certification will be issued under Wyo. Stat. § 11-7-405(b).

Section 5. Alfalfa Leaf-cutter Bee Sampling Procedure. The following procedures shall be used to sample bees under the bee certification program.

(a) All bees must be in loose cell state before samples can be taken.

(b) A two ounce sample shall be taken from each 20 pounds of bees owned or possessed by a beekeeper. An official sample size shall not consist of less than eight ounces (8 oz.). If the beekeeper owns or possesses more than 400 pounds, then the larvae will be divided into 400 pound lots and official samples shall be obtained from each lot. All official samples shall become the property of the department.

(c) Once the official samples have been obtained, the remaining composite sample shall be left in the possession of the owner of the bees or his designee. The owner has 10 days from date of receipt of certification to contact the department and discuss the original laboratory test results.

(d) All samples shall be collected using a random sampling procedure, i.e. a uniform sample from the top, middle, and bottom within the bee storage containers.

(e) All official samples will be obtained by department personnel in the presence of the owner of the bees or his designee.

(f) All official sample lot numbers must correspond with lot numbers assigned to the beekeepers storage containers.

(g) Sanitization - Wyoming Department of Agriculture personnel shall sanitize or dispose of equipment used in connection with sampling.

Section 6. Fees. All requests for certification shall be made to the department. The required certification fee shall be paid upon sampling.

(a) Importation Certification- All imported bees must be sampled by the department at the buyer's or owner's location within 10 days after importation and only a $50.00 per sample lab fee will be assessed.

(b) Annual Certification - Any person owning or possessing leaf-cutter bees within Wyoming shall make a request to the Department for certification by February 1 of each year and pay assessment fees at the time of sampling. A lab fee of $50.00 for each sample shall be assessed on bees sampled before March 1**.** Any samples received after March 1 will be assessed a $100.00 lab fee per sample.

(c) A certification fee shall be assessed for all Leaf-cutter Bees examined by the State of Wyoming. The fee, to cover costs of administration and enforcement of the Wyoming Alfalfa Leaf-cutter Bee Act and other related program needs shall not exceed $.26 per pound.

Section 7. Sale and Termination. All sales of bees shall be reported to the department as follows:

(a) All sales made shall be reported to the department by the bee owner giving name, address and location of the new owner.

(b) The department shall be notified of termination of bee operations.

Section 8. Wild Trapping Permit Procedure. A person intending to engage in wild trapping shall obtain a permit from the department prior to commencing trapping activities. The person applying for a permit shall obtain the signature of the property owner on which the bees are to be wild trapped. Any person keeping bees or nesting materials on property other than their own shall clearly mark the trapping material with his or her correct name, address, phone, location of wild trapping activities (1/4 section, section, township, range), number of bee boxes, and permission of property owners. Wild trapping will only be allowed with new laminated nesting material which must be removed from the state by October 1 of the year in which trapping began or submitted for certification as required under the regulations. A fee of $10.00 shall be submitted with each application for a wild trapping permit, with the check being made payable to the Wyoming Department of Agriculture. Each trapper is required to have a separate permit for each county in which he traps. New permits are required each season.

Statutes:

Wyoming Environmental Pesticide Control Act

Regulations:

Chapter 21 – Pesticide Board of Certification

Chapter 28 – Applicator Certification Rules and Regulations

Wyoming Environmental Pesticide Control Act of 1973

35-7-350. Short title.

This act shall be known and may be cited as the "Wyoming Environmental Pesticide Control Act of 1973".

35-7-351. Enforcing agency.

This act shall be administered by the department of agriculture of the state of Wyoming, hereinafter referred to as the "department".

35-7-352. Declaration of purpose.

The legislature hereby finds that pesticides and devices are valuable to our state's agricultural production and to the protection of man and the environment from insects, rodents, weeds, and other forms of life which may be pests, and it is essential to the public health and welfare that they be regulated closely to prevent adverse effects on human life and the environment. The purpose of this act is to regulate, in the public interest, the labeling, distribution, storage, transportation, disposal, use and application of pesticides to control pests. New pesticides are continually being discovered or synthesized which are valuable for the control of pests, and for use as defoliants, desiccants, plant regulators, and related purposes. The dissemination of accurate scientific information as to the proper use or nonuse, of any pesticide, is vital to the public health and welfare and the environment both immediate and future. Therefore, it is deemed necessary to provide for registration of pesticides and devices.

35-7-353. Board of certification.

A board of certification is established consisting of the director of the department of agriculture, and a member of the Wyoming weed and pest council and a University of Wyoming weed or pest specialist to be appointed by the governor. The governor may remove any member he appoints as provided in W.S. 9-1-202.

35-7-354. Definitions.

(a) "Applicator" or "operator" means:

(i) "Certified applicator" means any individual who is certified by the director as being competent with respect to the use and handling of pesticides, or of the use and handling of the pesticide or class of pesticides covered by the individual's certification;

(ii) "Commercial applicator" means a certified applicator (whether or not he is a private applicator with respect to some uses) who uses or supervises the use of any pesticide which is

classified for restricted use for any purpose or on any property other than as provided by paragraph (a)(iii) of this subsection;

(iii) "Private applicator" means any certified applicator who uses or supervises the use of any restricted use pesticide which is restricted to use by certified applicators and only for purposes of producing any agricultural commodity on property owned by him or his employer or under his control or (is applied without compensation other than trading of personal services between producers of agricultural commodities) on the property of another person.

(b) "Board of agriculture" means that body established by law under W.S. 11-2-102.

(c) "Device" means any instrument or contrivance (other than a firearm) which is intended for trapping, destroying, repelling, or mitigating any pest or any other form of plant or animal life (other than man, or bacteria, virus, or other microorganism on or in living man or other living animals) but does not include equipment used for the application of pesticides when sold separately therefrom.

(d) "Pesticide" means:

(i) Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pests;

(ii) Any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant;

(iii) Any substance or mixture of substances intended to be used as a spray adjuvant; and

(iv) Any other pesticide product or substance whether general use, restricted use, registered, suspended or cancelled, which by the label or portions thereof clearly show it is used or has been used as a pesticide.

(e) "Restricted use pesticide" means any pesticide product, the label of which states "restricted use" as required for registration by the environmental protection agency under the federal Insecticide, Fungicide and Rodenticide Act of 1972, as amended.

(f) "Dealer" or "distributor" means any person who imports, consigns, distributes, offers to sell or sells, barters or otherwise supplies pesticides in this state. A dealer or distributor may also be a registrant.

(g) "Director" means the director of the department of agriculture or his authorized agent.

(h) "Label" means a display of written, printed or graphic matter upon or affixed to the immediate container of any pesticide, or a reference within such display to other information.

(j) "Official sample" means any sample of a pesticide, degradate or residue taken by and designated as official by the director.

35-7-355. Director to administer and enforce provisions; board of certification to adopt regulations.

The director of the department of agriculture shall administer and enforce the provisions of this act and regulations issued thereunder. The board of certification may issue regulations after a public hearing following due notice to all interested persons in conformance with the provisions of the Wyoming Administrative Procedure Act to carry out the provisions of this act. Regulations may prescribe methods to be used in the application of pesticides, may prescribe standards for the classification and certification of applicators of pesticides, and may require certification, licensing, payment of reasonable fees for licensing or certification, submission of information, and passing of examinations by applicators of pesticides. Where the board of certification finds that regulations are necessary to carry out the purpose and intent of this act, the regulations may relate to the time, place, manner, methods, materials, and amounts and concentrations, in connection with the application of the pesticide, and may restrict or prohibit use of pesticides in designated areas during specified periods of time and shall encompass all reasonable factors which the board deems necessary. The department may issue licenses. Notwithstanding the provisions of W.S. 35-7-354(e), the board of agriculture, by regulation, following a hearing and pursuant to the Wyoming Administrative Procedure Act, may declare a specific pesticide or pesticide use a "restricted use pesticide", but only following a recommendation of the board of certification, and a finding of fact, in a public hearing conducted by the board of certification, that unreasonable adverse effects on the environment, including man, pollinating insects, animals, crops, wildlife and lands, other than pests, may reasonably occur. The director of the department of agriculture may allow the registration, licensing, testing, inspection and reporting requirements of this article to be conducted electronically as provided by the Uniform Electronic Transaction Act, W.S. 40-21-101 through 40-21-119 and any applicable federal electronic requirements.

35-7-356. Registration.

(a) Every pesticide or device which is distributed within this state or delivered for transportation or transported in intrastate commerce or between points within this state through any point outside this state shall be registered with the department of agriculture by its manufacturer or formulator subject to the provisions of this act. The registration shall be renewed annually prior to December 31 of each year but not if a pesticide or device is shipped from one plant or warehouse to another plant or warehouse as a constituent part to make a pesticide or device which is registered under the provisions of this act, if the pesticide or device is not sold and if the container thereof is plainly and conspicuously marked "For Experimental Use Only", together with the manufacturer's name and address, or if a written permit has been obtained from the department to sell the specific pesticide or device for experimental purposes subject to restrictions and conditions set forth in the permit.

(b) The applicant for registration shall file a statement with the department which shall include:

(i) The name and address of the applicant and the name and address of the person whose name will appear on the label, if other than the applicant's;

(ii) The name of the pesticide or device;

(iii) Other necessary information required for completion of the department's application for registration form;

(iv) The use classification as provided in the Federal Insecticide, Fungicide, and Rodenticide Act when required by regulations under this act.

(c) The director may require a full description of the tests made and the results thereof upon which the claims are based on any pesticide or device on which restrictions are being considered. In the case of renewal of registration, a statement shall be required only with respect to information which is different from that furnished when the pesticide or device was registered or last registered. The director may prescribe other necessary information by regulation.

(d) Every registrant of pesticides or device shall pay an annual registration fee of seventy-five dollars ($75.00) each for every product registered. All registrations shall expire on December 31 of each year, following the date of the registration, and may thereupon be renewed for successive periods of twelve (12) months upon payment of the proper fee. Funds collected pursuant to this section shall be deposited in the special natural resource account in the department of agriculture which is hereby created for programs authorized by W.S. 11-5-113 and 11-5-303.

(e) Any registration approved by the director and in effect on December 31 for which a renewal application has been made and the proper fee paid, shall continue in full force and effect until such time as the director notifies the applicant that the registration has been renewed, or otherwise denied in accord with the provisions of W.S. 35-7-358. Forms for registration shall be mailed to registrants at least thirty (30) days prior to the due date.

(f) If it appears to the director that the composition of the pesticide or device is such as to warrant the proposed claims for it and if the pesticide and its labeling and other material required to be submitted comply with the requirements of this act he shall register the pesticide.

35-7-357. Experimental use permits.

(a) Any person may apply to the director of the department of agriculture for an experimental use permit for a pesticide. The director may issue an experimental use permit if he determines that the applicant needs the permit in order to accumulate information necessary to register a pesticide under this act. An application for an experimental use permit may be filed at the time of or before or after an application for registration is filed.

(b) Use of a pesticide under an experimental use permit shall be under the supervision of the director, and shall be subject to such terms and conditions and be for such period of time as the director may prescribe in the permit.

(c) The director may revoke any experimental use permit, at any time, if he finds that its terms or conditions are being violated, or that its terms and conditions are inadequate to avoid unreasonable adverse effects on the environment.

35-7-358. Refusal to register; cancellation; suspension; legal recourse.

(a) If it does not appear to the director of the department of agriculture that the pesticide or device is such as to warrant the proposed claims for it or if the pesticide or device and its labeling and other material required to be submitted do not comply with the provisions of this act or regulations adopted thereunder, he shall notify the applicant of the manner in which the pesticide or device, labeling, or other material required to be submitted fails to comply with the provisions of this act so as to afford the applicant an opportunity to make the necessary corrections. If, upon receipt of notice, the applicant does not make the required changes the director may refuse to register the pesticide or device. The applicant may request a hearing as provided for in the Wyoming Administrative Procedure Act.

(b) The director, when he determines that the pesticide or device or labeling does not comply with the provisions of the act or the regulations adopted thereunder, may cancel the registration of a pesticide or device after a hearing in accordance with the provisions of the Wyoming Administrative Procedure Act.

(c) The director, when he determines that there is an imminent hazard, may suspend on his own motion, the registration of a pesticide in conformance with the provisions of the Wyoming Administrative Procedure Act.

(d) Any person who will be adversely affected by an order under this section may obtain judicial review in accord with the Wyoming Administrative Procedure Act.

35-7-359. Classification of licenses.

(a) Licenses shall include but are not limited to:

(i) Commercial applicator license;

(ii) Private applicator license.

(b) A commercial applicator shall notify the department of any change of address or change of employment within thirty (30) days of that change.

(c) The director may refuse an application for a reciprocal license for just cause including, but not limited to:

(i) An incomplete or falsified application;

(ii) A prior violation related to pesticides in this state or another state.

(d) The director may immediately suspend a reciprocal license upon discovery of any violation under subsection (c) of this section. The director may reinstate a license suspended under this subsection following a hearing pursuant to the Wyoming Administrative Procedure Act.

35-7-360. Liability for damage; service of process.

(a) Repealed by Laws 1979, ch. 91, 3.

(b) Repealed by Laws 1979, ch. 91, 3.

(c) Nothing in this act shall be construed to relieve any person from liability for any damage to the person or lands of another caused by the use of pesticides even though such use conforms to the rules and regulations of this act.

(d) Before the director shall issue a pesticide applicator's license to a nonresident to apply pesticides in this state, each nonresident pesticide applicator shall appoint the director as his attorney to receive services of legal process issued against the pesticide applicator in this state. The appointment, effect of appointment, and procedures for service of process shall be as provided by W.S. 26-3-121 and 26-3-122.

35-7-361. Inspection of equipment.

The director may provide for inspection of any equipment used for application of pesticides and may require repairs or other changes before its further use for pesticide application. A list of requirements that equipment shall meet may be adopted by regulation.

35-7-362. Reciprocal agreement.

The director may issue a license or certification on a reciprocal basis with other states without examination to a nonresident who is licensed, or certified, in another state substantially in accordance with the provisions of this act but financial security as provided for in W.S. 35-7-360 or proof of liability insurance shall be submitted by nonresident commercial applicators. The department shall, by rule and regulation, establish criteria for reciprocity including, but not limited to, formal agreements with other states, residency, categories and examination. The director is authorized to adopt additional rules and regulations necessary to implement this section.

35-7-363. Exemptions.

(a) The provision of W.S. 35-7-355 relating to licenses and requirements for their issuance shall not apply to any private applicator applying pesticides for himself or with ground

equipment or manually for his neighbors, except as to specific regulations as to the use of restricted pesticides and certification qualifications for private applicators, if:

(i) He operates farm property or operates and maintains pesticide application equipment primarily for his own use;

(ii) He is not engaged in the business of applying pesticides for hire amounting to a principal or regular occupation and he does not publicly hold himself out as a pesticide applicator.

(b) The word "device" shall not be construed to mean fly swatter, butterfly net, or any mechanical contrivance used to trap or kill insects or rodents.

35-7-364. Discarding and storing of pesticides and pesticide containers.

No person shall discard, transport, or store any pesticide or pesticide containers in such a manner as to cause injury to humans, vegetation, crops, livestock, wildlife, beneficial insects or to pollute any waterway in a way harmful to any wildlife therein. The board of certification may promulgate rules and regulations governing the discarding and storing of such pesticides or pesticide containers.

35-7-365. Subpoenas.

The director may issue subpoenas to compel the attendance of witnesses or production of books, documents, and records in the state in any hearing affecting the authority or privilege granted by a license, registration, or permit issued under the provisions of this act.

35-7-366. Penalties.

(a) Any person violating any provision of W.S. 35-7-350 through 35-7-375 or regulation thereunder is guilty of a misdemeanor and upon conviction shall be fined not more than five hundred dollars ($500.00) or imprisoned in the county jail for not more than one (1) year, or both, for the first offense, and upon conviction for a subsequent offense shall be fined not more than one thousand dollars ($1,000.00) or imprisoned in the county jail for not more than one (1) year, or both. Any offense committed more than three (3) years after a previous conviction shall be considered a first offense.

(b) The director may bring an action to enjoin the violation or threatened violation of any provision or any regulation made pursuant to W.S. 35-7-350 through 35-7-375 in a court of competent jurisdiction of the county in which the violation occurs or is about to occur. The action may be initiated by the attorney general or the district attorney for the county in which the violation has or is about to occur.

(c) No state court shall allow the recovery of damages from administrative action taken if the court finds that there was probable cause for such action.

(d) If the department incurs fees or other expenses to remediate a violation by an applicator, the department may seek restitution from the applicator or the applicator's employer through a court of competent jurisdiction.

35-7-367. Enforcement.

(a) The sampling and examination of pesticides or devices shall be made under the direction of the director for the purpose of determining whether they comply with the requirements of this act. The director is authorized, upon presentation of proper identification, to enter any distributor's premises, including any vehicle of transport, at all reasonable times in order to have access to pesticides or devices. If it appears from such examination that a pesticide or device fails to comply with the provisions of this act or regulations adopted thereunder, and the director contemplates instituting criminal proceedings against any person, the director shall cause appropriate notice to be given to such person. Any person so notified shall be given an opportunity within a reasonable time to present his views, either orally or in writing, with regard to the contemplated proceedings. If thereafter in the opinion of the director, it appears that the provisions of the act or regulations adopted thereunder have been violated by such person, the director shall refer a copy of the results of the analysis or the examination of such pesticide or device to the district attorney for the county in which the violation occurred.

(b) Nothing in this act shall be construed as requiring the director to report minor violations of this act for prosecution or for the institution of condemnation proceedings when he believes that the public interest will be served best by a suitable notice of warning in writing.

(c) For the purpose of carrying out the provisions of this act the director may enter upon any public or private premises at reasonable times, in order:

(i) To have access for the purpose of inspecting any equipment subject to this act and such premises on which the equipment is kept or stored;

(ii) To inspect lands actually or reported to be exposed to pesticides;

(iii) To inspect storage or disposal areas;

(iv) To inspect or investigate complaints of injury to humans or land;

(v) To sample pesticides being applied or to be applied.

(d) If the director is denied access to any land where access was sought for the purposes set forth in this act, he may apply to any court of competent jurisdiction for a search warrant authorizing access to such lands for the stated purposes. The court shall with probable cause upon such application issue the search warrant for the purposes requested.

(e) The director may bring an action to enjoin the violation or threatened violation of any provision of this act or any rule made pursuant to this act in the district court of the county in which such violation occurs or is about to occur.

35-7-368. Cooperation.

The director is authorized to cooperate with and enter into agreements with any other agency of this state, the United States, and any other state or agency thereof for the purpose of carrying out the provisions of this act and securing uniformity of regulation.

35-7-369. Disposition of funds.

All moneys received by the department under the provisions of this act shall be deposited into the treasury of the state to the credit of the general fund, excluding those funds collected pursuant to W.S. 35-7-356(d).

35-7-370. Severability.

If any provision of this act is declared unconstitutional, or the applicability thereof to any person or circumstance is held invalid, the constitutionality of the remainder of this act and applicability thereof to other persons and circumstances shall not be affected thereby.

35-7-371. Prior liability.

The enactment of this act shall not have the effect of terminating, or in any way modifying, any liability, civil or criminal, which shall already be in existence on the date this act becomes effective.

35-7-372. Jurisdiction; repeals.

Jurisdiction in all matters pertaining to the registration, distribution, transportation and disposal of pesticides and devices is by this act vested exclusively in the director and board of certification and all acts and parts of acts inconsistent with this act are hereby expressly repealed.

35-7-373. Registration of aircraft.

(a) Any person engaged in the activity or business of applying pesticides utilizing any type of aircraft shall register each aircraft annually with the Wyoming department of agriculture, on a printed form provided by the department. The registration shall include the following:

(i) Manufacturer, model and type of aircraft;

(ii) Identification number assigned to the aircraft;

(iii) Owner of the aircraft; and

(iv) User of the aircraft if different from the owner.

(b) The fee authorized by W.S. 11-1-104 shall be charged to each person registering aircraft. Aircraft shall be registered on or before April 1 of each year.

35-7-374. Prohibited acts.

(a) It is unlawful for any person to:

(i) Detach, alter, deface or destroy, in whole or in part, any labeling prior to proper disposal of the pesticide containers;

(ii) Refuse to keep any records as required by the director by regulation or to refuse to allow the inspection of such records by the director during normal working hours;

(iii) Make available for use, or to use, any restricted pesticide classified for restricted use for some or all purposes, except by or under the direct supervision of a certified applicator;

(iv) Use any pesticide in a manner inconsistent with its labeling which means to use any pesticide in a manner not permitted by the labeling, or not authorized by the director under a special local need registration, an experimental use permit or an emergency exemption, provided that this paragraph does not include:

(A) Applying a pesticide at any dosage, concentration or frequency less than that specified on the labeling;

(B) Applying a pesticide against any target pest not specified on the labeling if the application is to the crop, animal or site specified on the labeling;

(C) Employing any method of application not prohibited by the labeling; or

(D) Mixing a pesticide or pesticides with a fertilizer when the mixture is not prohibited by the labeling.

(v) To falsify any records required by the director by regulation;

(vi) To falsify any application, examination or affidavit for certification or license;

(vii) Other than certified applicators or persons working under their direct supervision to use restricted use pesticides;

(viii) To use restricted use pesticides inconsistent with the applicator category of certification.

(b) If the director finds that the violation occurred despite the exercise of due care or did not cause significant harm to another person, to health or to the environment, he shall issue a warning in lieu of prosecution.

(c) Except as otherwise provided by the Wyoming Environmental Pesticide Control Act of 1973, no political subdivision of this state shall adopt or enforce any ordinance, resolution, rule or regulation regarding pesticides storage, sale, distribution, notification of use, or use that is

more stringent than the Wyoming Environmental Pesticide Control Act of 1973 or rules promulgated thereunder.

35-7-375. Required notification of pesticide application on or within school buildings.

(a) Any commercial applicator licensed under W.S. 35-7-359 or any other person shall provide notification required by this section of the application of any pesticide as defined under W.S. 35-7-354(d) which is applied on or within any building or other real property used by a school district primarily for the education of students, including any property used by the district for student activities or playgrounds. Notice under this subsection shall be provided to the district not less than seventy-two (72) hours prior to application and the district shall further notify students, teachers and staff. All notices distributed under this subsection shall be marked with a distribution date and include information indicating date of application, location of application or treatment area, pest to be controlled, name and type of pesticide to be applied and a contact for additional information. All notices distributed under this subsection shall be retained by the school or school district for two (2) years.

(b) In addition to notice required under subsection (a) of this section, the licensed commercial applicator or other school employee applying pesticides shall post signs on the school building or property stating the date of application, the location of the application or treatment area, the name and type of the pesticide to be applied and a contact for additional information. Upon request, the licensed commercial applicator or other school employee shall provide information on how to obtain additional information on the pesticide. Not less than twelve (12) hours before application of pesticides within school buildings, signs shall be posted at main entrances to school buildings and at the entrances to the specific application area within buildings. If pesticide application is made outdoors to any area adjacent to a school building or on property used by the district for student activities or playgrounds, signs shall be posted immediately adjacent to the treated area and at the entrance to the district property. The signs shall remain posted for seventy-two (72) hours.

(c) Anti-microbial pesticides defined under W.S. 35-7-354(d), such as disinfectants and sanitizers used by school employees for cleaning purposes and insect or rodent bait stations of the type available for home use are exempted from the notification and posting requirements specified in subsections (a) and (b) of this section.

35-7-376. Direct supervision.

(a) As used in this section, unless otherwise prescribed by its labeling, a pesticide shall be considered to be applied under the direct supervision of a certified applicator if it is applied by a competent person acting under the instructions and control of a certified applicator who is available within a reasonable time and distance, even though the certified applicator is not physically present at the time and place the pesticide is applied.

(b) All pesticide applications made for hire shall be under the direct supervision of a certified commercial applicator. All applications of restricted use pesticide shall be made under

the direct supervision of a certified applicator. Availability of the certified applicator shall be directly related to the potential hazard of the situation. The certified applicator shall be:

(i) Available by immediate contact through telephone or radio; or

(ii) Physically present on-site when use of the pesticide poses a potentially serious hazard to people or the environment.

(c) As used in this section:

(i) Reasonable time by the supervising applicator to on-site is deemed to be not more than one (1) hour response time;

(ii) Reasonable distance by the supervising applicator to on-site is deemed to be not more than fifty (50) air miles.

CHAPTER 21
BOARD OF CERTIFICATION
FOR WYOMING ENVIRONMENTAL PESTICIDE CONTROL ACT OF 1973
RULES OF PRACTICE & PROCEDURE FOR CONTESTED CASE HEARINGS

Section 1. **Authority.**

(a.) These rules are promulgated as required by the Wyoming Environmental Pesticide Control Act of 1973 (W.S. 35-7-350 through 35-7-376), hereinafter called the Act, and the Wyoming Administrative Procedure Act (W.S. 16-3-101 through 16-3-115) for the purpose of carrying out the intent of the Act and is applicable to all sections of the Act.

Section 2. **Definitions.**

(a.) Board: The Board of Certification established by W.S. 35-7-353.

(b.) Chairman: The Director of the Department of Agriculture.

(c.) Director: Duly appointed Director of the Department of Agriculture.

(d.) Proponent: The Board, or any other person or party who initiates or requests any action or decision, and may include complainant where applicable.

(e.) Contestant: Any person who will be aggrieved or adversely affected by a proposed action of the Board and who requests a hearing before the Board, and may include the opponent or defendant where applicable.

(f.) Party: Each person or agency named or admitted as a party, or properly seeking and entitled as of right to be admitted as a party.

(g). Person: Any individual, partnership, association or organized group of persons whether incorporated or not.

(h.) Rules of Civil Procedure: Those Wyoming Rules of Civil Procedure in effect at the time of the hearing.

(i.) Hearing Officer: Designated Hearing Officer who shall preside over the hearing.

Section 3. **Notice of Proposed Action by the Board.**

(a.) The Board may initiate any action which may result in a contested case in accordance with the Wyoming Administrative Procedure Act by:

(i.) Giving written notice of proposed action either served personally or by certified mail, return receipt requested, to the person or persons who will be aggrieved or adversely affected thereby, or

(ii.) Causing the publication in proper form, of a copy of the notices,

(1.) Said publication to be made in three newspapers of general circulation in the state.

(2.) Said publication to appear at least once a week for three consecutive weeks prior to the commencement of the action, the last publication to appear at least five days prior to the action.

(b.) A notice of proposed action by the Board shall include a statement of:

(i.) The nature of the proposed action.

(ii.) The particular rules, regulations, bylaws, and/or statutes which are involved.

(ii.) A short, plain statement of the matters asserted.

(iv.) The fact that a hearing may be requested within twenty days after the date of the mailing of the notice; and that if a hearing is not requested, the proposed action shall automatically take effect at the expiration of the twenty day period.

(c.) If a person makes a request for a hearing pursuant to this section, the request shall contain the information required by Section 4b.

(d.) Upon receipt of a request for hearing, the Board shall give the person making the request written notice by certified mail, return receipt requested, of the time, place and nature of the hearing as well as the legal authority under which the hearing is being held.

Section 4. **Hearing Before the Board.**

(a.) Any person aggrieved or adversely affected in fact by the Board=s action or decision, or who will be aggrieved or adversely affected in fact by the recommendation, may within twenty days after the date of the mailing of the notice of the action or decision or recommendation, request a hearing before the Board.

(b.) The request for hearing shall be directed to and served upon the Hearing Officer of the Board or the Director of the Department of Agriculture and shall show:

(i.) A request for hearing before the Board.

(ii.) The decision, or recommendation upon which a hearing is requested.

(iii.) A statement in ordinary, but concise, language of the reason for requesting a hearing.

(iv.) The address of the person making the request and the name and address of his attorney, if any.

(c.) Upon receipt of a request for hearing, the Board shall give the person making the request written notice of:

(i.) The time, place and nature of the hearing.

(ii.) The legal authority under which the hearing is to be held.

(iii.) The particular rules, bylaws and/or statutes involved.

(iv.) A short and plain statement of the matters asserted.

(v.) The written notice shall be served by mail addressed to the person making the request or his attorney.

(d.) The hearing shall be conducted as a contested case hearing.

Section 5. **Order of Procedure at Hearings.**

(a.) As nearly as may be, hearings shall be conducted in accordance with the following order of procedure.

(b.) The Hearing Officer shall announce that the Board is open to transact business and call by docket number and title the case to be heard.

(c.) The proponent will be allowed an opening statement to briefly explain its position to the Board and outline the evidence it proposes to offer, together with the purpose thereof.

(d.) The contestant will be allowed an opening statement.

(e.) Any additional parties will be allowed an opening statement.

(f.) The proponent=s evidence will be heard. Witnesses may be cross-examined by the contestant or his attorney, by members of the Board and the Hearing Officer. The proponent=s offered exhibits will be marked by letters of the alphabet, beginning with AA@.

(g.) The evidence of the contestant will be heard and exhibits of such will be marked with numbers, beginning with the number A1". The proponent or his attorney, each member of the Board, and the attorney for the Hearing Officer, shall have the right to cross-examine all witnesses presented on behalf of the contestant.

(h.) Other parties may offer evidence.

(i.) The Hearing Officer may, in his discretion, allow evidence to be offered out of order, as herein prescribed.

(j.) Closing statements will be made in the following sequence:

(i.) Proponent

(ii.) Contestant

(iii.) Proponent=s rebuttal if the Hearing Officer feels it is necessary.

(k.) The time for oral argument may be limited by the Hearing Officer.

(l.) The Hearing Officer may recess the hearing as required.

(m.) After all interested parties have been offered an opportunity to be heard, the Hearing Officer shall declare the evidence closed and excuse all witnesses.

(n.) The Hearing Officer may, at his discretion or the Board=s request, allow or require parties to tender written briefs, and the time for filing such briefs shall be set by the Hearing Officer.

(o.) The Board may, at its discretion, appoint a designated Hearing Officer, who will the preside as Hearing Officer during the course of such hearing; such designated Hearing Officer shall be an attorney licensed to practice law in the State of Wyoming.

(p.) The designated Hearing Officer shall, for purposes of that hearing, have all powers provided in W.S. 16-3-112(b).

(q.) The Hearing Officer may declare that the matter is taken under advisement and that the decision and order of the Board will be announced at a later date.

Section 6. **Applicable Rules of Civil Procedure.**

(a.) The Wyoming Rules of Civil Procedure shall apply in all hearings before the Board.

Section 7. **Attorneys.**

(a.) The filing of a pleading or other appearance by an attorney constitutes his appearance for the party for whom made. The Board must be notified in writing of his withdrawal from any matter. Any person appearing before the Board at a hearing in representative capacity shall be precluded from examining or cross-examining any witness, unless such person shall be an attorney licensed to practice law in the State of Wyoming, or a non-resident attorney associated with a Wyoming attorney.

Section 8. **Intervention.**

(a.) Any person interested in obtaining relief sought by a proponent or otherwise interested in the determination of a proceeding pending before the Board, may petition for leave to intervene in such proceeding prior to or at the time it is called for hearing, but not thereafter except for good cause shown. The petition shall set forth the grounds of the proposed intervention, the position and interest of the petitioner in the proceeding, and if affirmative relief is sought, the same should conform to the requirements for a formal complaint. Leave will not be granted except on allegations reasonable pertinent to the issue already presented and which do not unduly broaden them.

If leave is granted, the petitioner becomes an intervener and a party to the proceeding with the right to have notice of, and appear at the taking of testimony, to produce and cross-examine witnesses, and to be heard on the argument of the case.

Section 9. **Transcripts.**

(a.) Oral proceedings or any part thereof shall be transcribed on request of any party upon payment of the cost thereof. In case of an appeal to the District Court, the party appealing shall secure and file a transcript of the testimony and other evidence offered at the time of the hearing with the Board, which transcripts shall be verified by the oath of the reporter or transcribed as true and correct transcripts of the testimony and other evidence in the hearing. The cost of making the transcript shall be paid by the party prosecuting such appeal. The complete record on appeal, including the transcript of testimony, shall be verified by the clerk.

Section 10. **Decision and Order**.

(a.) The Board shall make a written decision and order in all cases, which decisions shall contain findings of fact and conclusions of law based exclusively on the evidence admitted at the hearing and matters officially noticed. The decision and order of the Board shall be placed in the record of the case which shall be retained by the board.

Section 11. **Record.**

(a.) The record in all cases shall include

(i.) All formal and informal notices

(ii.) Evidence received or considered including matters officially noticed

(iii.) Questions and offers of proof, objections and rulings thereon.

(iv.) Any proposed findings and objections thereto.

(v.) The decision and order of the Board.

Section 12. **Members of the Board Present.**

(a.) No member of the Board shall vote upon a decision of the Board unless he shall have been present at the hearing or has read the transcript of the proceedings. A decision by a majority of the members of the Board voting shall be the decision of the Board.

Section 13. **Appeals.**

(a.) Appeals from decisions of the Board are governed by the Wyoming Administrative Procedures Act and the Wyoming Rules of Appellate Procedure.

Section 14. **Transcript in Case of Appeal**.

(a.) In case of an appeal to the District Court as above provided, the party appealing shall secure and file with the Court a transcript of the testimony and all other evidence offered at the hearing, which transcript must be verified by the oath of the reporter who took the testimony as a true and correct transcript of the testimony and other evidence in the case. The compensation of the reporter for making the transcript of the testimony and all other costs involved in such appeal shall be borne by the party prosecuting such appeal.

CHAPTER 28

APPLICATOR CERTIFICATION RULES AND REGULATIONS

Section 1. Authority. Pursuant to the authority vested in the Board of Certification by virtue of WS 35-7-355 1977, as amended and WS 16-3-101 through 16-3-115, the following rules and regulations pertaining to the certification and licensing of pesticide applicators are hereby promulgated and adopted.

Section 2. Definitions. Terms used in these regulations are in addition to those set forth in WS 35-7-354 1977, as amended. The following terms shall have the meaning stated below:

(a) Accident means an unexpected, undesirable event, caused by the use of, or presence of a pesticide, that adversely affects man or the environment.

(b) Act means the Wyoming Environmental Pesticide Control Act of 1973.

(c) Agricultural Commodity means any plant, or part thereof, or animal or animal product, produced by a person primarily for sale, consumption, propagation or other use by man or animals.

(d) Applicator means any individual certified in one of the following license classifications:

(i) Commercial Applicator means a certified applicator (whether or not he is a private applicator with respect to some uses) who uses or supervises the use of any pesticide which is classified as restricted use for any purpose or on any property other than as provided under the definition of Private Applicator.

Commercial Applicator also means a certified applicator who uses or supervises the use of any pesticide during any commercial application as defined by paragraph (f) of this section.

(ii) Private Applicator means any certified applicator who uses or supervises the use of any restricted use pesticide which is restricted to use by certified applicators and only for purposes of producing any agricultural commodity on property owned by him or his employer or under his control or (is applied without compensation other than trading of personal services between producers of agricultural commodities) on the property of another person.

(e) Calibration of Equipment means measurement of dispersal or output of application equipment and adjustments of such equipment to control the rate of dispersal, and droplet or particle size of a pesticide dispersed by the equipment.

(f) Commercial Application means the application of any pesticide, (excluding sanitizers/disinfectants), done by contract or hire.

(g) Director means the Director of Agriculture for the State of Wyoming or his designated Department of Agriculture employee.

(h) Common Exposure Route means a likely way (oral, dermal, respiratory) by which a pesticide may reach and/or enter an organism.

(i) Compatibility means that property of a pesticide that permits its use with other chemicals without undesirable results being caused by the combination.

(j) Competent means properly qualified to perform functions associated with pesticide application, the degree of capability required being directly related to the nature of the activity and associated responsibility.

(k) Direct Supervision means (unless otherwise prescribed by the labeling) the act or process whereby any application of a pesticide is made by a competent person acting under the instructions and control of a certified applicator who is responsible for the actions of that person and who is available, within a reasonable time and distance, even though such certified applicator is not physically present at the time and place the pesticide is applied.

(i) At a minimum, availability of the certified applicator must be directly related to the hazard of the situation. The certified applicator must be available by immediate contact through telephone or radio, or must be physically present on-site when use of the pesticide poses a potentially serious hazard to people or the environment.

(l) Environment means water, air, land and all plants, man or other animals living therein, and the relationships which exists among them.

(m) Equipment means any equipment or contrivance used to apply pesticides to the environment, but shall not include any pressurized hand-size household apparatus used to apply pesticides.

(n) Forest means a concentration of trees and related vegetation in non-urban areas sparsely inhabited by and infrequently used by humans, characterized by natural terrain and drainage patterns.

(o) General Use Pesticide means any pesticide formulation not classified as restricted use.

(p) Hazard means a probability that a given pesticide will have an adverse effect on man or the environment in a given situation, the relative likelihood of danger or ill effect being dependent on a number of interrelated factors present at any given time.

(q) Host means any plant or animal on or in which another lives for nourishment, development or protection.

(r) Label means the written, printed or graphic matter on, or attached to, the pesticide or device or any of its containers or wrappers.

(s) Labeling means the label and all other written, printed or graphic matter:

(i) accompanying the pesticide or device at any time; or

(ii) to which reference is made on the label or in literature accompanying the pesticide or device, except to current official publications of the Environmental Protection Agency; the United States Department of Agriculture and Interior; the Department of Health, Education and Welfare; state experiment stations; state agricultural colleges; and other similar Federal or State institutions or agencies authorized by law to conduct research in the field of pesticides.

(t) Land means all land and water areas, including air space, and all plants, animals, structures, buildings and contrivances, appurtenant thereto or situated thereon, fixed or mobile, including any used for transportation.

(u) Licensed Pesticide Dealer means any person who makes available for use any restricted use pesticide, or who offers to make available for use any restricted use pesticide.

(v) Make Available For Use means to distribute, sell, ship, deliver for shipment, or receive and (having so received) deliver for use by any person. However, the term shall not include transactions solely between persons who are pesticide producers, registrants, wholesalers, or retail dealers acting only in those capacities.

(w) Minor Crops Grown for Seed means alfalfa grown for seed, turf grasses grown for seed, forage grasses grown for seed, trefoils grown for seed, vetch grown for seed, clovers grown for seed, miscellaneous vegetables grown for seed, miscellaneous legumes grown for seed, miscellaneous Brassica sp. grown for seed, sunflowers grown for seed and miscellaneous tree and shrub sp. grown for seed.

(x) Non-Target Organism means a plant or animal other than the one against which the pesticide is applied.

(y) Ornamental means trees, shrubs and other plantings in and around habitations generally, but not necessarily located in urban and suburban areas, including residences, parks, streets, retail outlets, industrial and institutional buildings.

(z) Persistence means that period of time a pesticide and its biologically active metabolites remain in the environment.

(aa) Person means any individual, partnership, association, corporation or any organized group of persons whether incorporated or not.

(bb) Pest means any insect, snail, slug, rodent, predator, nematode, fungi, weed or other form of terrestrial or aquatic plant, or animal life, or virus, bacteria, or other micro-organisms (except viruses, bacteria, or other micro-organisms in or on living man or other living animals) which the board of certification declares to be a pest.

(cc) Protective Equipment means clothing or any other material or devices that shield against unintended exposure to pesticides.

(dd) Regulated Pest means a specific organism considered to be a pest requiring regulatory restrictions, regulations, or control procedures in order to protect the host, man and/or his environment.

(ee) Restricted-Use Pesticide means any pesticide product, the label of which states "restricted use" as required for registration by the Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act of 1972, as amended.

(ff) Susceptibility means the degree to which an organism is affected by a pesticide at a particular level of exposure.

(gg) Toxicity means the property of a pesticide to cause any adverse physiological effects.

Section 3. Licensing Requirements for Commercial Applicators.

(a) Any person making a commercial application of any pesticide, will be required to obtain a commercial applicators license, prior to any such commercial application of a pesticide.

Section 4. Certification Categories for Commercial Applicators.

(a) Procedure. Certification categories for Commercial Applicators using or supervising the use of any pesticide are identified below:

(b) Categories:

(i) Cat. 901 Agricultural Pest Control

(A) Weed Control. This subcategory includes commercial applicators using or supervising the use of any pesticide for weed control in production of agricultural crops, including but not limited to, sugar beets, corn, beans, alfalfa, potatoes, small grains, feed grains, forage, vegetables, small fruits, as well as on grasslands and non-crop agricultural lands.

(B) Insect Control. This subcategory includes commercial applicators using or supervising the use of any pesticide for insect control in production of agricultural crops, including but not limited to, sugar beets, corn, beans, alfalfa, potatoes, small grains, feed grains, forage, vegetables, small fruits, as well as on grasslands and non-crop agricultural lands.

(C) Disease Control. This subcategory includes commercial applicators using or supervising the use of any pesticide for disease control in production of agricultural crops, including but not limited to, sugar beets, corn, beans, alfalfa, potatoes, small grains, feed grains, forage, vegetables, small fruits, as well as on grasslands and non-crop agricultural lands.

(D) Animal. This subcategory includes commercial applicators using or supervising the use of any pesticide on animals, including but not limited to, beef cattle, dairy cattle, swine, sheep, horses, goats, poultry and livestock, and to places on or in which animals are confined. Doctors of veterinary medicine engaged in the business of applying pesticides for hire, publicly holding themselves out as pesticide applicators, or engaged in large scale use of pesticides are included in this category.

(E) Rodent Control. This subcategory includes commercial applicators using or supervising the use of any pesticide to control rodents in production of agricultural crops, including but not limited to, sugar beets, corn, beans, alfalfa, potatoes, small grains, feed grains, forage, vegetables, small fruits, as well as on grasslands and non-crop agricultural lands.

(F) Chemigation. This subcategory includes commercial applicators using or supervising the use of any pesticide through an irrigation system. Certification in this subcategory requires concurrent certification in one or more applicable subcategories under category 901, Agricultural Pest Control.

(ii) Cat. 902 Forest Pest Control. This category includes commercial applicators using or supervising the use of any pesticide in forests, forest nurseries, and forest seed producing areas.

(iii) Cat. 903 Ornamental and Turf Pest Control.

(A) Weed Control. This subcategory includes commercial applicators using or supervising the use of any pesticide to control weeds in the maintenance and production of ornamental trees, shrubs, flowers and turf.

(B) Insect Control. This subcategory includes commercial applicators using or supervising the use of any pesticide to control insects in the maintenance and production of ornamental trees, shrubs, flowers and turf.

(C) Disease Control. This subcategory includes commercial applicators using or supervising the use of any pesticide to control plant disease in the maintenance and production of ornamental trees, shrubs, flowers and turf.

(D) reserved

(E) Rodent Control. This subcategory includes commercial applicators using or supervising the use of any pesticide to control rodents in the maintenance and production of ornamental trees, shrubs, flowers and turf.

(iv) Cat. 904 Seed Treatments. This category includes commercial applicators using or supervising the use of any pesticide on seed.

(v) Cat. 905 Aquatic Pest Control. This category includes commercial applicators using or supervising the use of any pesticide purposefully applied to standing or running water, excluding applicators engaged in public health related activities included in category 908 below.

(vi) Cat. 906 Right-of-Way Pest Control. This category includes commercial applicators using or supervising the use of any pesticide in the maintenance of public roads, electric power lines, pipelines, railway rights-of-way or other similar areas.

(vii) Cat. 907 Industrial, Institutional, Structural and Health Related Pest Control. This category includes commercial applicators using or supervising the use of any pesticide, in, on or around food handling establishments, human dwellings, institutions such as schools and hospitals, industrial establishments/sites including warehouses and grain elevators and any other structures and/or adjacent areas, public or private, and for the protection of stored, processed or manufactured products.

(A)-(F) reserved

(G) Fumigation. This subcategory includes commercial applicators using or supervising the use of pesticides, in gaseous form, within enclosed gas tight spaces (tents, structures, vehicles or vessels), for a wide range of commodities and conditions.

(H) Bird Control. This subcategory includes commercial applicators using or supervising the use of any pesticide to control pest birds.

(viii) Cat. 908 Public Health Pest Control. This category includes state, federal or other governmental employees using or supervising the use of any pesticide in public health programs for the management and control of pests having medical and public health importance.

(ix) Cat. 909 Regulatory Pest Control. This category includes state, federal or other governmental employees who use or supervise the use of any pesticide in the control of regulated pests.

(A)-(D) reserved

(E) Rodent Control. This subcategory includes state, federal or other governmental employees who use or supervise the use of any pesticide to control rodents.

(F)-(G) reserved

(H) Bird Control. This subcategory includes state, federal or other governmental employees who use or supervise the use of any pesticide to control pest birds.

(I) Vertebrate Pest Control. This subcategory includes state, federal or other governmental employees who use or supervise the use of any pesticide for the control of vertebrate pests.

(J) M-44. This subcategory includes state, federal or other governmental employees who use m-44 devices to control coyotes.

(K) Livestock Protection Collar. This subcategory includes state, federal or other governmental employees who use LP Collars on sheep to control coyotes.

(x) Cat. 910 Demonstration and Research Pest Control. This category includes: individuals who demonstrate to the public the proper use and techniques of application of any pesticide or supervise such demonstration, and persons conducting field research with pesticides, and in doing so, use or supervise the use of any pesticide. Included in the first group are such persons as extension specialists and county agents, commercial representatives demonstrating pesticide products and/or making crop/pest control recommendations, and those individuals demonstrating methods used in public programs.

The second group includes: state, federal, commercial and other persons conducting field research on or utilizing any pesticide.

(xi) Cat. 911 Specific Use Pest Control. This category includes commercial applicators who use or supervise the use of any pesticide which the board of certification determines does not adequately fit in any of the above (10) major categories.

(A)-(K) reserved

(L) Wood Preservatives and/or Wood Treatment. This subcategory includes commercial applicators who use or supervise the use of any pesticide, at treating plants and saw mills, for preservative treatment of wood by pressure, dipping, soaking, and diffusion processes to produce a commodity for sale and/or installation. This subcategory also includes the handling and topical application and injection of wood preservatives, for operations such as ground line pole treatment, waterproofing, millwork cutoffs, or supplemental field treatment.

(M) Non-Government M-44. This subcategory includes commercial applicators who ARE NOT government employees, who use the M-44 device for the control of coyotes.

(N) Non-Government Livestock Protection Collar. This subcategory includes commercial applicators who are not government employees, who use the LP Collar for the control of coyotes.

(O) Mosquito Control. This subcategory includes commercial applicators using or supervising the use of any pesticide to control mosquitos.

(P) Sewer Line Root Control. This subcategory includes commercial applicators using or supervising the use of any pesticide (including Metam Sodium or Dichlobenil) for sewer line root control.

(xii) Cat. 912 Aerial Application. This category includes commercial applicators using or supervising the use of any pesticide applied by fixed or rotary wing aircraft. In addition to certification in this category, certification is also required in one or more of the other categories listed under paragraph (b) of this section appropriate to the type of application being performed.

Section 5. Standards for Certification of Commercial Applicators.

(a) Determination of Competency. Competence in the use and handling of pesticides shall be determined on the basis of written examination and as appropriate, performance testing, based upon standards set forth below. Such examinations and testing shall include the general standards applicable to all categories: the additional standards specifically identified for each category-subcategory (if any) in which a commercial applicator is to be classified; and, as appropriate, any special standards established pursuant to Section 11 of these regulations.

(b) General standards of competency for all categories of certified commercial applicators.

(i) All commercial applicators shall demonstrate, by examination, practical knowledge of the principles and practices of pest control and safe use of pesticides. Testing shall be based on examples of problems and situations; appropriate to the particular category or subcategory of the applicators' certification and the following areas of competency:

(A) Label and Labeling Comprehension.

(I) The general format and terminology of pesticide labels and labeling, including all written, printed or graphic matter associated with the product;

(II) The understanding of instructions, warnings, terms, symbols, and other information commonly appearing on pesticide labels;

(III) Classification of the product, general or restricted use.

(IV) Necessity for use consistent with the label.

(B) Safety.

(I) Pesticide toxicity and hazard to man, including all common exposure routes (dermal, inhalation and ingestion).

(II) Common types and causes of pesticide accidents;

(III) Precautions necessary to guard against injury to applicators and other individuals in or near treated areas;

(IV) Need for and use of protective clothing and equipment;

(V) Symptoms of pesticide poisoning;

(VI) First aid and other procedures to be followed in case of a pesticide accident; and

(VII) Proper identification, storage, transport, handling, mixing and disposal methods for pesticides, disposal of pesticide containers, including precaution to be taken to prevent children from having access to pesticides and pesticide containers.

(C) Environment. The potential environmental consequence of the use and misuse of pesticides as may be influenced by:

(I) Weather and other climatic conditions;

(II) Types of terrain, soil and other substrate;

(III) Groundwater aquifer vulnerability;

(IV) Presence of fish, wildlife and non-target organisms;

(V) Presence of endangered species; and

(VI) Drainage patterns.

(D) Pests.

(I) Common features of pest organisms and characteristics of damage needed for pest recognition;

(II) Recognition of relevant pests; and

(III) Pest development and biology as it may be relevant to problem identification and control.

(E) Pesticides.

(I) Types of pesticides;

(II) Types of formulations;

(III) Compatibility, synergism, persistence and animal and plant toxicity to the formulations;

(IV) Hazards and residues associated with use;

(V) Factors which influence effectiveness or lead to such problems as resistance to pesticides; and

(VI) Dilution procedures.

(F) Equipment.

(I) Types of application equipment and advantages and limitations of each type; and

(II) Uses, maintenance and calibration.

(G) Application Techniques.

(I) Methods of procedure used to apply various formulations of pesticides, solutions and gases, together with a knowledge of which technique of application to use in a given situation;

(II) Relationship of discharge and placement of pesticides to proper use, unnecessary use, and misuse; and

(III) Prevention of drift and pesticide loss into the environment.

(H) Laws and Regulations.

(I) Applicable state and federal laws and regulations; and

(II) Worker Protection Standards as they apply to farms, forests, nurseries and greenhouses.

(c) Specific standards of competency for each category and/or subcategory. Commercial applicators when certifying in a specific category, shall be particularly qualified in that category as elaborated below:

(i) Cat. 901 Agricultural Pest Control.

(A) Weed Control. Applicators must demonstrate, by examination, practical knowledge of the crops grown and the specific weeds of those crops on which they may be using pesticides. Practical knowledge is required concerning soil and water problems, pre-harvest intervals, restricted entry intervals, phytotoxicity, and potential for environmental contamination, non-target injury and community problems resulting from the use of pesticides in agricultural areas.

(B) Insect Control. Applicators must demonstrate, by examination, practical knowledge of the crops grown and the specific insects of those crops on which they may be using pesticides. Practical knowledge is required concerning soil and water problems, pre-harvest intervals, restricted entry intervals, phytotoxicity, and potential for environmental contamination, non-target injury and community problems resulting from the use of pesticides in agricultural areas.

(C) Disease Control. Applicators must demonstrate, by examination, practical knowledge of the crops grown and the specific diseases of those crops on which they may be using pesticides. Practical knowledge is required concerning soil and water problems, pre-harvest intervals, restricted entry intervals, phytotoxicity and potential for environmental contamination, non-target injury and community problems resulting from the use of pesticides in agricultural areas.

(D) Animal. Applicators applying pesticides directly to animals must demonstrate, by examination, practical knowledge of such animals and their associated pests. A practical knowledge is also

required concerning specific pesticide toxicity and potential residue, since host animals will frequently be used for food. Further, the applicator must know the relative hazards associated with such factors as formulation, application techniques, ages of animals, stress and extent of treatment.

(E) Rodent Control. Applicators shall demonstrate, by examination, practical knowledge of detrimental rodents found in agricultural situations, the potential impact on the environment of pesticides used in rodent control programs, and knowledge of factors influencing introduction, spread and population dynamics of relevant pests. In addition, use requires particular ability that relates to integrated knowledge of the locale, target species and damage patterns caused by the target species.

(F) Chemigation. Applicators shall demonstrate practical knowledge of equipment associated with chemigation, including calibration techniques and use of anti-back flow/check valves to prevent contamination of water supplies. They shall demonstrate knowledge of labeling requirements of products registered for chemigation, including posting requirements. Further, they shall demonstrate knowledge of appropriate use of personal protective equipment associated with this type of application.

(ii) Cat. 902 Forest Pest Control. Applicators shall demonstrate, by examination, practical knowledge of the types of forest, forest nurseries and seed production in Wyoming and the pests involved. They should possess practical knowledge of the cyclic occurrence of certain pests and specific population dynamics as a basis for programming pesticide applications. A practical knowledge is required of the relative biotic agents and their vulnerability to the pesticides to be applied. The applicator must demonstrate, by examination, practical knowledge of control methods which will minimize the possibility of secondary problems such as unintended effects of wildlife. Proper use of specialized equipment must be demonstrated, especially as it may relate to meteorological factors and adjacent land use.

(iii) Cat. 903 Ornamental and Turf Pest Control.

(A) Weed Control. Applicators shall demonstrate, by examination, practical knowledge of pesticide problems associated with weed control in the production and maintenance of ornamental trees, shrubs, plantings and turf, including cognizance of potential phytotoxicity due to a wide variety of plant material, drift and persistence beyond the intended period of pest control. Because of the frequent proximity of human habitations to application activities, applicators in this subcategory must demonstrate, by examination, practical knowledge of application methods which will minimize or prevent hazards to humans, pets and other domestic animals.

(B) Insect Control. Applicators shall demonstrate, by examination, practical knowledge of problems associated with insect control in the production and maintenance of ornamental trees, shrubs, plantings and turf, including cognizance of potential phytotoxicity due to a wide variety of plant material, drift and persistence beyond the extended period of pest control. Because of the frequent proximity of human habitations to application activities, applicators in this subcategory must demonstrate,

by examination, practical knowledge of application methods which will minimize or prevent hazards to humans, pets and other domestic animals.

(C) Disease Control. Applicators shall demonstrate, by examination, practical knowledge of pesticide problems associated with disease control in the production and maintenance of ornamental trees, shrubs, plantings and turf, including cognizance of potential phytotoxicity due to a wide variety of plant material, drift, and persistence beyond the intended period of pest control. Because of the frequent proximity of human habitation to application activities, applicators in this subcategory must demonstrate, by examination, practical knowledge of application methods which will minimize or prevent hazards to humans, pets and other domestic animals.

(D) reserved

(E) Rodent Control. Applicators shall demonstrate, by examination, practical knowledge of detrimental rodents found in ornamental and turf situations, the potential impact of the environment on pesticides used in rodent control programs, and knowledge of factors influencing introduction, spread and population dynamics of relevant pests. In addition, use requires particular ability that relates to integrated knowledge of the locale, target species and damage patterns caused by the target species.

(iv) Cat. 904 Seed Treatment. Applicators shall demonstrate, by examination, practical knowledge of types of seeds that require chemical protection against pests and factors such as seed coloration, carriers, and surface active agents which influence pesticide binding and may effect germination. They must demonstrate, by examination, practical knowledge of hazards associated with handling, sorting and mixing, and misuse of treated seed such as introduction of treated seed into food and feed channels, as well as proper disposal of unused treated seed.

(v) Cat. 905 Aquatic Pest Control. Applicators shall demonstrate, by examination, practical knowledge of the secondary effects which can be avoided by proper application rates, correct formulations and correct application of pesticides used in this category. They shall demonstrate, by examination, practical knowledge of various water use situations and the potential of downstream effects. Further, they must have a practical knowledge concerning pesticide effects on plants, fish, birds, beneficial insects, and other organisms which may or may not be present in aquatic environments. These applicators shall demonstrate, by examination, practical knowledge of the principles of limited area application.

(vi) Cat. 906 Right-of-Way Pest Control. Applicators shall demonstrate, by examination, practical knowledge of a wide variety of environments since rights-of-way can traverse many different terrains, including waterways. They shall demonstrate, by examination, practical knowledge of problems of runoff, drift and excess foliage destruction and ability to recognize target organisms. They shall also demonstrate, by examination, practical knowledge of the nature of herbicides and the need for containment

of these pesticides within the right-of-way area, and the impact of their application activities on the adjacent areas and communities.

(vii) Cat. 907 Industrial, Institutional, Structural and Health Related Pest Control. Applicators must demonstrate, by examination, a practical knowledge of a wide variety of pests including their life cycles, types of formulations appropriate for their control and methods of application that avoid contamination of food, damage and contamination of habitation, and exposure of people and pets. Since human exposure is a potential problem, applicators must demonstrate, by examination, practical knowledge of the specific factors which may lead to a hazardous condition, including continuous exposure in the various situations encountered in this category. Because health related pest control may involve outdoor applications, applicators must also demonstrate, by examination, practical knowledge of environmental conditions, particularly related to this activity.

(A)-(F) Reserved

(G) Fumigation. Applicators shall demonstrate practical knowledge of conditions requiring the application of fumigants, and selection of the most appropriate fumigation methods to use. They shall demonstrate knowledge of equipment used in fumigation, such as application, monitoring, testing, calculating, and personal protective devices. Applicators shall demonstrate ability to release, distribute and maintain the correct fumigant concentrations for the product/structure being fumigated, under differing conditions. They shall also have knowledge of the hazards involved with the use of fumigants, including requirements for properly ventilating enclosed spaces after application.

(H) Bird Control. Applicators shall demonstrate practical knowledge of protected and unprotected pest birds and conditions conducive to bird problems. They shall demonstrate knowledge of all applicable laws and regulations protecting birds and the actions required in order to control protected pest species. Applicators shall demonstrate knowledge of bird control methods and the hazards involved with pesticide usage, especially secondary poisoning of non-target organisms.

(viii) Cat. 908 Public Health Pest Control. Applicators shall demonstrate, by examination, practical knowledge of vector-disease transmission as it relates to and influences application programs. A wide variety of pests are involved, and it is essential they be known and recognized, and appropriate life cycles and habitats be understood as a basis for control strategy. These applicators shall have practical knowledge of a great variety of environments ranging from streams to those conditions found in buildings. They should also have a practical knowledge of the importance and employment of such non-chemical control methods as sanitation, waste disposal and drainage. This category does not include control of vertebrate pests which are disease vectors. (Vertebrate disease vectors are included in paragraph (c)(ix)(H) of this section)

(ix) Cat. 909 Regulatory Pest Control. Applicators shall demonstrate, by examination, practical knowledge of regulated weeds, insects and diseases, and the potential impact to the environment

of pesticides used in control programs. They shall demonstrate, by examination, knowledge of factors influencing introduction, spread and population dynamics on relevant pests.

(A)-(D) reserved

(E) Rodent Control. Applicators shall demonstrate practical knowledge of detrimental rodents, the potential impact on the environment of pesticides used in rodent control programs and knowledge of factors influencing the introduction, spread and population dynamics of relevant pests. In addition, applicators shall demonstrate integrated knowledge of the locale, target species and damage patterns caused by the target species.

(F)-(G) reserved

(H) Bird Control. Applicators shall demonstrate practical knowledge as indicated under paragraph (c)(vii)(G) of this Section.

(I) Vertebrate Pest Control. Applicators shall demonstrate, by examination, practical knowledge of regulated vertebrate pests (excluding birds) and, the potential impact on the environment of pesticides used in control programs. They shall demonstrate, by examination, knowledge of factors influencing introduction, spread and population dynamics of relevant pests. In addition, use requires particular ability that relates to integrated knowledge of the locale, target species and damage patterns caused by the target species.

(J) M-44. Applicators shall demonstrate practical knowledge on the use of the M-44 device to control coyotes, including the history of the M-44 device, toxic effects of sodium cyanide, first aid for cyanide poisoning, M-44 parts and their use, preparation of the M-44 for use, setting the M-44, the use of baits and attractants, selecting M-44 use sites, EPA use restrictions, and all reporting and record keeping requirements pertaining to the use of M-44's. Applicators shall also demonstrate knowledge of basic coyote information, characteristics of predatory species, and use of alternative methods for predator control. Certification in this subcategory shall require separate and specific training, examination and certification.

(K) Livestock Protection Collars. Applicators shall demonstrate practical knowledge on the use of the Livestock Protection Collar to control coyotes, including criteria for applicators, specific certification requirements for applicators, monitoring protocols and labeling and the use of the technical bulletin on the LP Collar. Applicators shall also demonstrate knowledge of procedures for evaluating predation on livestock and wildlife, and all reporting and record keeping requirements pertaining to the use of the LP Collar. Certification in this subcategory shall require separate and specific training, examination and certification.

(x) Cat. 910 Demonstration and Research Pest Control. Applicators demonstrating the safe and effective use of pesticides to other applicators and the public will be expected to meet comprehensive standards reflecting a broad spectrum of pesticide uses. Many different pest problem situations will be encountered in the course of activities associated with demonstrations, and practical knowledge of problems, pest and population levels occurring in each demonstration situation is required. Further, they should demonstrate an understanding of pesticide - organism interactions and the importance of integrating pesticide use with other control methods. In addition, they shall meet the specific standards required for categories 901 through 909 of this section as they may be applicable to their particular activity.

Persons conducting field research or method improvement work with pesticides should know the general standards under paragraph (b) of this section. In addition, they shall meet the specific standards required for categories 901 through 909 of this section, applicable to their particular activity, or alternatively, to meet the more inclusive requirements listed under "demonstration".

(xi) Cat. 911 Specific Use Pest Control. Applicators shall demonstrate, by examination, practical knowledge of the specific pest to be controlled, and the potential impact on the environment of the specific pesticide to be used. The applicator shall also demonstrate, by examination, practical knowledge concerning all pertinent factors influencing application methods, hazards to the applicator and the public, and any other factors which the Board of Certification deems of importance for the specific pesticide. The Board of Certification will develop the examination only after consulting with the manufacturer of the specific restricted-use pesticide. Because of the unusual nature of these specific pesticides, neither the Board of Certification, the Wyoming Department of Agriculture, nor the University of Wyoming will be required or expected to provide training for applicators prior to the examination. Not withstanding the provisions under Section 6(k) dealing with training for re-certification, the board of certification is not required to approve training courses for re-certification, and the board of certification may require the applicator to be re-examined to maintain certification.

(A)-(K) reserved

(L) Wood Preservation. Applicators shall demonstrate practical knowledge of conditions for which preservative treatment of wood is used. Applicators shall demonstrate a knowledge of all laws specific to the use of wood preservatives, the health and environmental hazards associated with wood treating procedures, and the need for informing purchasers of precautions for handling, use, and disposal of treated wood products. They shall demonstrate knowledge of all applicable treating and testing equipment, structural wood destroying organisms, conditions conducive to infestation and shall demonstrate knowledge and ability to select, calibrate and use appropriate control procedures.

(M) Non-Government M-44. Applicators shall demonstrate practical knowledge as indicated under paragraph (c)(ix)(i) of this section.

(N) Non-Government Livestock Protection Collar. Applicators shall demonstrate practical knowledge as indicated under paragraph (c)(ix)(J) of this section.

(O) Mosquito Control. Applicators shall demonstrate practical knowledge of appropriate life cycles and habitats of mosquito populations which form the basis of a control strategy. Applicators shall have practical knowledge of a great variety of environments ranging from exterior water sources to those conditions found in buildings and also have knowledge of non-chemical control methods such as sanitation, waste disposal and drainage.

(P) Sewer Line Root Control. Applicators shall demonstrate by practical knowledge of various technical aspects of sewer line root control, with emphasis on the safe use and application of chemical products, especially those which contain metam sodium, a restricted-use pesticide.

(xiii)Cat. 912 Aerial application. Applicators shall demonstrate practical knowledge of aerial equipment calibration and maintenance and the avoidance of problems associated with aerial application, such as drift and non-target injury. In addition, applicators will demonstrate knowledge appropriate to the type of aerial application being performed through their additional certification in one or more of the categories listed under paragraph (c) of this section.

(d) The above standards do not apply to the following persons for purposes of these regulations:

(i) Persons conducting research in a laboratory, involving pesticides; and

(ii) Doctors of Medicine and Doctors of Veterinary Medicine applying drugs or medication during the course of their normal practice and who do not publicly represent themselves as pesticide applicators.

Section 6. Certification of Commercial Applicators

(a) Each applicant requiring examination or re-examination for any reason, shall be required to take the examination at a time and place to be specified by and under the direction of the Director of Agriculture in accordance with the conditions and provisions herein. Applications to be provided by the department.

(b) New applicants, upon successful completion of examination(s), shall submit with the application for licensing, a fee, payable to the Wyoming Department of Agriculture. All fees submitted shall be non-refundable.

(i) Commercial Applicator - $25.00 License fee.

(c) Applicants, upon meeting re-certification requirements shall submit with the application for licensing, a fee payable to the Wyoming Department of Agriculture. All fees submitted shall be non-refundable.

(i) Commercial Applicator - $25.00 Renewal fee.

(d) Employees of governmental entities are exempted from paying the fees, when the license is used in the performance of their official duties.

(e) Applicants for examination or re-examination may be tested at the Cheyenne office of the Wyoming Department of Agriculture during regular office hours at any time convenient to both the applicant and the department. Applicants may also be tested at other locations, at the convenience of the applicant, the department or the proctor designated by the department.

(f) Applicants for examination or re-examination shall be required to obtain a minimum score of seventy (70) percent on the general examination and in all specific categories or sub-categories in which they are tested, in order to qualify for a commercial applicators license.

(g) Applicants shall be notified in writing of the results of any examination as soon as possible, but in no case shall it exceed thirty (30) days.

(h) Failure to receive a passing score on any examination shall require that the applicant be re-examined only in that category which he failed.

(i) Any applicant who fails to obtain a passing score on two (2) successive examination attempts will be required to attend a training program for new applicators approved by the Director prior to taking any examination a third time.

(j) Applicants who have been examined and found qualified for certification as a commercial applicator shall be issued a license in the appropriate categories or sub-categories, provided that all other requirements for certification have been fully complied with. The license for commercial applicators shall be issued for that portion of the calendar year in which the license is issued or reviewed plus twenty-five (25) months and shall expire on January 31 of the appropriate year.

(k) The Board of Certification shall allow commercial applicators to become re-certified by one of the following methods:

(i) Accumulate 24 hours of approved training during the valid years of the applicators license.

(ii) Attend the annual re-certification short course.

(iii) Re-examination in all applicable categories.

Any extenuating circumstances may be submitted to the board of certification for review.

(l) Any applicator who has had his license suspended shall, prior to re-instatement, be required to re-take all applicable examinations and achieve a passing grade before operations may be resumed, and shall be considered on probation for a period of one (1) year thereafter. Any violation of the Wyoming Environmental Pesticide Control Act of 1973 or Chapter XXVIII, Applicator Certification Rules and Regulations, during the period of probation shall be cause for immediate revocation of license for up to three (3) years.

(m) The Wyoming Pesticide Board of Certification shall in all cases adhere to the Wyoming Administrative Procedures Act when revoking, canceling or suspending any commercial or general applicators license.

(n) Non-resident applicators who meet Wyoming certification requirements and present proper documentation (applicator license and letter of verification), may be considered certified in Wyoming and may be issued a license in the appropriate category. However, reciprocal certification will be extended only to applicants from those states that accept Wyoming certification for reciprocity.

Section 7. Standards for Supervision of Non-Certified Applicators by Certified Private and Commercial Applicators.

(a) At a minimum, availability of the certified applicator must be directly related to the hazard of the situation. For all applications conducted by non-certified person(s), the certified applicator must be available by immediate contact through telephone or radio. In addition, the certified applicator must be physically present on-site when use of the pesticide poses a potentially serious hazard to people or the environment.

(b) When required by the pesticide product label, the certified applicator shall be physically present on-site at all times during the application.

(c) Evidence that adequate supervision is being exercised shall include, but not be limited to:

(i) Verifiable (written) instruction to the competent person,

(ii) Detailed guidance for applying the pesticide properly.

(iii) A copy of the appropriate pesticide product label and Material Safety Data Sheet (MSDS).

(iv) The certified applicator being physically on-site within a reasonable period of time.

Section 8. Certification Categories for Private Applicators

(a) Procedure. Certification categories for applicators (other than commercial) using or supervising the use of restricted use pesticides are identified below:

(b) Categories:

(i) Cat. 01001 General Certification. This category includes private applicators using or supervising the use of restricted use pesticides in the production of agricultural commodities, including but not limited to, sugar beets, corn, beans, alfalfa, potatoes, small grains, forage, vegetables, small fruits, as well as grasslands and non-crop agricultural lands. This category also includes private applicators using or supervising the use of restricted use pesticides on animals and to places on or in which animals are confined.

(ii) Cat. 01002 Product Specific. This category includes private applicators who use or supervise the use of a "single" restricted use pesticide or a restricted use pesticide which the Board of Certification determines does not adequately fit in any of the other private applicator categories, (i.e., wood treatment products).

(iii) Cat. 01003 M-44(Sodium Cyanide). This category includes private applicators using the M-44 device for the purpose of controlling coyotes.

(iv) Cat. 01004 Livestock Protection Collar. This category includes private applicators using the LP Collar for the purpose of controlling coyotes.

(v) Cat. 01005 Chemigation. This category includes private applicators using or supervising the application of restricted use pesticides through an irrigation system. Certification in this category requires concurrent certification in Category 01001.

Section 9. Standards for Certification of Private Applicators

(a) Determination of Competency. Competence in the use and handling of restricted-use pesticides by a private applicator will be determined by procedures set forth below. As a minimum requirement for certification, a private applicator must show that he possesses a practical knowledge of the pest problems and pest control practices associated with his agricultural operation; proper storage, use, handling and disposal of the pesticide and containers and his related legal responsibility.

(b) General standards of competency for all categories of certified private applicators.

(i) Recognize common pests to be controlled and damage caused by them.

(ii) Read and understand the label and labeling information, including the common name of the pesticide(s) being used, the crop, animal or site to which the pesticide is being applied, pest(s) to be controlled, timing and methods of application, safety precautions, any harvest, grazing or restricted entry restriction(s), and any specific disposal procedures.

(iii) Apply pesticides in accordance with label instructions and warnings, including the ability to prepare the proper concentrations of pesticide to be used under particular circumstances, taking into account such factors as area to be covered, speed at which application equipment will be operated, and the quantity of product dispersed in a given period of operation.

(iv) Recognize local environmental situations that must be considered during application in order to avoid any possible contamination.

(v) Recognize poisoning symptoms and procedures to follow in case of a pesticide accident.

(c) Specific standards of competency for each category of certification. Private applicators, when certifying in a specific category, shall be particularly qualified in that category as elaborated below:

(i) Cat. 01001 General Certification. Applicators shall demonstrate practical knowledge of agricultural commodities, and the specific weeds, insects and diseases of those agricultural commodities on which they may use restricted use pesticides. Practical knowledge is required concerning relevant soil and water problems, pre-harvest intervals, restricted entry intervals, phytotoxicity, and potential for environmental contamination and non-target injury. Applicators shall also demonstrate practical knowledge of animals and their associated pests, and pesticide toxicity and residue potential.

(ii) Cat. 01002 Product Specific. Applicators shall demonstrate practical knowledge of the specific pest to be controlled and the potential impact on the environment of the specific pesticide being used. The applicator must also demonstrate practical knowledge concerning pertinent factors influencing application methods, hazards to the applicator and the public and any other factors which the Board of Certification deems of importance for the specific pesticide.

(iii) Cat. 01003 M-44(Sodium Cyanide). Applicators shall demonstrate practical knowledge on the use of the M-44 device to control coyotes, including the history of the M-44 device, toxic effects of sodium cyanide, first aid for cyanide poisoning, M-44 parts and their use, preparation of the M-44 for use, setting the M-44, the use of baits and attractants, selecting M-44 use sites, EPA use restrictions and all reporting and record keeping requirements pertaining to the use of M-44's. Applicators shall also demonstrate knowledge of basic coyote information, characteristics of predatory species and use of alternative methods for predator control. Certification in this category shall require separate and specific training, examination and certification.

(iv) Cat. 01004 Livestock Protection Collar. Applicators shall demonstrate practical knowledge on the use of the LP Collar to control coyotes, including criteria for applicators, specific certification requirements for applicators, monitoring protocols and labeling and the use of the technical bulletin on the LP Collar. Applicators shall also demonstrate knowledge of procedures for evaluating predation on livestock and wildlife and all reporting and record keeping requirements pertaining to the use of the LP Collar. Certification in this category shall require separate and specific training, examination and certification.

(v) Cat. 01005 Chemigation. Applicators shall demonstrate practical knowledge of equipment associated with chemigation, including calibration techniques and use of an anti-back flow/check valve to prevent contamination of water supplies. They shall demonstrate knowledge of labeling requirements of products registered for chemigation, including posting requirements. Further, they shall demonstrate knowledge of the appropriate use of personal protective equipment associated with this type of application.

Section 10. Certification of Private Applicators

(a) Each applicant may be required to take an examination under the direction of the Director of Agriculture in accordance with the conditions and provisions specified herein. The requirements for an examination may be fulfilled by satisfactorily completing one of the following:

(i) A training course approved by the Board of Certification,

(ii) A program instruction workbook, or

(iii) A written or oral examination.

(A) Applicants shall be required to obtain a passing grade of seventy (70) percent on each section or category of the examination under which they wish to qualify.

(B) Applicants shall be notified in writing of the results of any examination within thirty (30) days.

(C) Such competence of each private applicator shall be indicated through the issuance, by the Department of Agriculture, of a private applicator's license, based upon the standards set forth in Section 9, which ensures the private applicator is competent to use the restricted-use pesticide under limitations of applicable state laws and regulations.

(D) Applicants who have been examined and found qualified as private applicators shall be issued an appropriate license. License shall be valid for such condition as stated on the applicators license. The license for the private applicator shall be issued for the portion of the calendar year in which

the license is issued or reviewed plus fifty-two (52) months and shall expire on April 30 of the appropriate year. The Board of Certification shall require private certified applicators to attend a re-certification course approved by the Board once every five (5) years, complete a program instruction workbook, or be re-examined to maintain certification. The license shall be a non-fee license.

(E) In the event a person, at the time of testing for certification is unable to read a label, the issuing authority will administer a private applicator "single product" examination orally, and the applicant, if approved, shall be certified only for use of that product.

(F) Any private applicator who has had their license suspended shall, prior to reinstatement, be required to take a written examination and receive a passing grade before operations may be resumed, and shall be considered on probation for a period of one (1) year thereafter. Any violations during the period of probation shall be cause for immediate revocation of license for up to three (3) years.

(G) The Wyoming Pesticide Board of Certification shall in all cases adhere to the Wyoming Administrative Procedures Act when revoking, canceling or suspending any private applicator license.

Section 11. Pesticide(s) Subject to Other Restrictions as Provided by the Board of Certification

(a) When it is determined that standards for the certification of private applicators, or commercial applicators must be more stringent than the standards in Section 5 or Section 9 and additional special identification is necessary for an individual using a highly toxic pesticide or applying a pesticide which has been demonstrated to be particularly hazardous to the environment, the standards for the applicator shall include, in addition to their category standards, an especially high degree of knowledge concerning the compound's action, its limitations and the areas in which it is to be applied.

(b) When it is determined by the Board of Certification that unreasonable adverse effects on the environment may reasonably occur, and following a hearing pursuant to the Wyoming Administrative Procedures Act, the Board may restrict the time, place, manner, materials, amounts and concentrations used in connection with the application of a pesticide, or may prohibit use of pesticides in designated areas during specified periods of time. The restrictions and/or prohibitions shall encompass all reasonable factors which the Board deems necessary.

Section 12. Use of Pesticides Under Special Registration for Production of Minor Crops Grown for Seed.

(a) This section applies to pesticide products registered under Section 18 and/or Section 24(c) of FIFRA, and used in the production of minor crops grown for seed as defined in Section 2, paragraph (w) of these regulations.

(b) The use of these pesticide products is not permitted on fields producing feed for livestock and no portion of the treated field, including but not limited to, seed, seed screenings, hay forage or stubble, may be used for human food or animal feed.

(c) The current year's treated seed crop shall not be used or distributed for animal feed purposes, including but not limited to, hay, green chop, pellets, meal, whole seed, cracked seed, seed screenings, roots, bulbs, leaves, chaff or stubble; nor can grazing take place on the current year's treated seed crops.

(d) Screenings or other crop by-products shall not enter feed channels by distribution and/or direct use. All seed screenings and/or crop by-products that were treated with a pesticide registered for minor crop seed production must be immediately removed from the feed market, and disposed of in such a manner that they cannot be distributed or used for feed or food purposes. The seed conditioner shall keep records of all minor crop seed screenings and their disposal (site, method, amount and type of material, date of shipment) and shall furnish these records to the department upon request.

(e) Treated minor crop seed shall not be used or distributed for human food.

(f) All crop seed treated with any pesticide registered for use in minor crop seed production only, shall be tagged at the processing plant and such tag shall state NOT FOR HUMAN CONSUMPTION AND/OR ANIMAL FEED. It shall be the grower's responsibility to notify the processing plant(s) of any seed crop(s) treated with pesticide(s) registered for use in minor crop seed production only.

(g) All usage, in addition to the requirements of this rule, shall be in compliance with the label of the pesticide registered for use in seed production only.

Section 13. Licensed Pesticide Dealer

(a) Any person who makes available for use a restricted-use pesticide as defined in W.S. 34-7-354(e) to certified or non-certified persons shall register, for the purpose of licensing, the principal business name and address by which the dealer operates and the business name and address of each branch dealership with the Wyoming Department of Agriculture on an annual basis.

(b) Persons requiring a pesticide dealers license shall submit with the license application, a $25.00 fee for each dealer establishment, payable to the Wyoming Department of Agriculture. No establishment shall be required to pay more than $100.00 in WDA license fees. (Reference W.S. 11-1-104 (a)).

(c) Pesticide dealer license(s) will be issued by the department to the applicant for each establishment. Licenses to be renewed by April 1 of each year.

Section 14. Reports and Records

(a) Licensed pesticide dealers shall maintain and retain accurate and legible records of all sales of restricted use pesticides for a period of two (2) years.

(b) Dealers shall maintain office records of all sales of restricted-use pesticides to certified applicators at each dealership. Records shall include:

(i) Date of sale

(ii) Name and address of purchaser

(iii) Applicator license number

(iv) Category(s) of certification

(v) License expiration date

(vi) Type of pesticide, brand name and EPA registration number

(vii)Total amount of product purchased

(c) When a restricted-use pesticide is made available for use to a NON-CERTIFIED PERSON for use by a certified applicator, dealers shall maintain office records as required under paragraph (b) of this section.

Dealers shall also be required to obtain documentation from the certified applicator, authorizing the non-certified person to act on their behalf, plus the name and address of the non-certified person to whom the restricted use pesticide is made available and the type of document from which the name and address was obtained.

(d) Certified commercial applicators who are involved in the commercial application of pesticides shall maintain office records giving such information with respect to:

(i) Name & address of person for whom the application was made, and if applicable, who purchased the pesticide(s).

(ii) Location of the pesticide application

(iii) Commodity/site treated

(iv) Pest controlled

(v) Pesticide applied:

(A) Brand name of product

(B) EPA registration number

(C) Total amount of pesticide used

(D) Rate of application

(E) Method of application

(vi) Date and time of application

(vii) Weather conditions: (time of application)

(A) Temperature

(B) Wind direction and velocity

(e) Such records shall be open for inspection at any time during business hours, by the Director of Agriculture or his designated department employee.

(f) Commercial applicators shall maintain and retain accurate and legible records of all pesticides applied during commercial applications, for a period of two (2) years.

Section 15. Required Practices for Commercial Applicators and Private Applicators.

(a) Certified commercial applicators and private applicators shall notify the department of any change of business address within seven (7) days.

(b) Certified commercial applicators making a commercial application, shall prior to application, inform the customer of the following items:

(i) Pesticide(s) applied

(ii) Possible residue hazards

(iii) Any restricted entry periods

(iv) Any waiting periods prior to harvest

(v) Application date(s) and time(s)

(vi) Post-application label safety precautions

(vii) Other applicable label requirements (e.g. posting, Worker Protection Standards)

(c) Commercial applicators making commercial applications shall maintain and retain accurate and legible records of the information required under paragraph (b) of this section, for a period of two (2) years.

Section 16. Storage and Disposal of Pesticides and Pesticide Containers.

(a) All certified pesticide applicators shall store all pesticide concentrates and dilute mixtures using methods which are reasonably calculated to prevent the contamination of other products by means of volatilization, leakage, breakage or other causes, and which are reasonably calculated to avoid the creation of an unreasonable risk of harm to persons, property, domestic/wild animals, or the environment.

(b) Pesticide storage areas shall be kept clean and orderly, and pesticide containers shall be positioned so that they are not exposed to unreasonable risk of damage to the containers or their labels.

(c) Pesticides and pesticide containers shall be covered or otherwise protected from the elements, in a manner which is reasonably calculated to minimize the risk of damage to labels, and to avoid the creation of an unreasonable risk of harm to persons, property or domestic/wild animals.

(d) Until such time as the department promulgates specific rules and regulations governing the storage and disposal of pesticides and pesticide containers, the RECOMMENDED procedures detailed in 40 CFR, part 165 promulgated by the Administrator, U.S. EPA, shall be the recommended procedures for Wyoming. The department shall make copies of these procedures available to any person needing guidance for proper storage and disposal of pesticides and pesticide containers.

(e) All 1080 Livestock Protection Collars and M-44 Sodium Cyanide capsules shall be stored and transported in the original metal container, or comparable unit, and shall be locked at all times, except when collars or capsules are actually being removed or replaced. In addition, when in transit, the metal storage container(s) shall be placed inside a leak-proof, impact-resistant container which shall also be locked and secured. All containers shall be placarded with appropriate warning labels, indicating the presence of toxic chemicals within.

Section 17. Penalties. Any person who violates any provision of these Applicator Certification Rules and Regulations shall, in addition to those administrative sanctions provided for below, remain subject to those criminal sanctions provided for by W.S. 35-7-366, 1977, as amended (or any other appropriate Wyoming statutes). Any violation of these rules and regulations may be deemed as sufficient cause and

may result in the denial, revocation or suspension of any license, or permit issued pursuant to this act, after a hearing as prescribed in the Wyoming Administrative Procedures Act.

NATIONAL STRATEGY TO PROMOTE THE HEALTH OF HONEY BEES AND OTHER POLLINATORS

Pollinator Health Task Force

MAY 19, 2015

THE WHITE HOUSE
WASHINGTON

May 19, 2015

On behalf of the Pollinator Health Task Force, we are pleased to transmit the *National Strategy to Promote the Health of Honey Bees and Other Pollinators* (Strategy). Developed through a collaborative effort across the Executive Branch, this Strategy outlines a comprehensive approach to tackling and reducing the impact of multiple stressors on pollinator health, including pests and pathogens, reduced habitat, lack of nutritional resources, and exposure to pesticides. Building on the current state of the science, and with a renewed emphasis on expanding our understanding of the complex interactions among the various factors impacting pollinator health, the Strategy lays out current and planned Federal actions to achieve the following overarching goals:

- **Honey Bees:** Reduce honey bee colony losses during winter (overwintering mortality) to no more than 15% within 10 years. This goal is informed by the previously released Bee Informed Partnership surveys and the newly established quarterly and annual surveys by the USDA National Agricultural Statistics Service. Based on the robust data anticipated from the national, statistically-based NASS surveys of beekeepers, the Task Force will develop baseline data and additional goal metrics for winter, summer, and total annual colony loss.
- **Monarch Butterflies:** Increase the Eastern population of the monarch butterfly to 225 million butterflies occupying an area of approximately 15 acres (6 hectares) in the overwintering grounds in Mexico, through domestic/international actions and public-private partnerships, by 2020.
- **Pollinator Habitat Acreage:** Restore or enhance 7 million acres of land for pollinators over the next 5 years through Federal actions and public/private partnerships.

The Strategy addresses the four themes central to the June 2014 Presidential Memorandum "Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators," namely: conducting research to understand, prevent, and recover from pollinator losses; expanding public education programs and outreach; increasing and improving pollinator habitat; and developing public-private partnerships across all these activities. A critical component of the Strategy is to advance the science underpinning the government's land management and regulatory decisions. To this end, the Task Force has prepared the accompanying "Pollinator Research Action Plan," which outlines gaps in current knowledge of pollinators and pollinator declines, and identifies priority research efforts needed to close these gaps.

The Strategy also advances ambitious Federal commitments to increase and improve habitat for pollinators, both directly through the large variety of facilities and acreages of land managed by the Federal government, and indirectly through the leadership role that Federal agencies can play in interactions with states, localities, the private sector, and citizens. These actions range from planting pollinator gardens and improving land management practices at Federal facilities, to advancing the availability and use of pollinator-friendly seed mixes in land management, restoration, and rehabilitation actions nationwide.

By expanding the conversation through enhanced public education and outreach, as well as strongly-built public/private partnerships, the Strategy seeks to engage all segments of our society so that, working together, we can take meaningful and important steps to reverse pollinator declines.

Pollinators are critical to our Nation's economy, food security, and environmental health. Honey bee pollination alone adds more than $15 billion in value to agricultural crops each year, and provides the backbone to ensuring our diets are plentiful with fruits, nuts, and vegetables. Through the actions discussed in this Strategy, and by working with partners across our country, we can and will help restore and sustain pollinator health nationwide.

Hon. Tom Vilsack

Secretary of Agriculture

Hon. Gina McCarthy

Administrator, U.S. Environmental Protection Agency

Contents

Executive Summary

Wherever flowering plants flourish, pollinating bees, birds, butterflies, bats, and other animals are hard at work, providing vital but often unnoticed services. But many pollinators are in serious decline in the United States and worldwide. Preventing continued losses of our country's pollinators requires immediate national attention, as pollinators play a critical role in maintaining diverse ecosystems and in supporting agricultural production. Some three-fourths of all native plants in the world require pollination by an animal, most often an insect, and most often a native bee. Pollinators, most often honey bees, are also responsible for one in every three bites of food we take, and increase our nation's crop values each year by more than 15 billion dollars. Unabated, these losses of our pollinators threaten agricultural production, the maintenance of natural plant communities, and the important services provided by those ecosystems, such as carbon cycling, flood and erosion control, and recreation.

In response to this threat, in June 2014, President Obama issued a memorandum establishing a Pollinator Health Task Force, co-chaired by the Secretary of Agriculture and the Administrator of the Environmental Protection Agency. The Task Force created this document, the *National Strategy to Promote the Health of Honey Bees and Other Pollinators* (Strategy), to promote the health of honey bees (*Apis mellifera*) and other managed bees, wild bees (both native and introduced species), butterflies and other pollinating insects, and birds and bats.

The Strategy expands and adds to actions already being undertaken by Federal departments and agencies to reverse pollinator losses and restore populations to healthy levels. It focuses on both immediate and long-term changes that can be made to improve the well-being of pollinator populations. Consequently, the Strategy addresses the many factors impacting pollinator health, including certain land-use practices, declining forage and nesting resources, pests and diseases, pesticides, and bee biology.

While our nation is a mosaic of land uses and ownerships, pollinating animals do not recognize human-drawn boundaries. They make use of food and habitat anywhere it is found, whether on national park land, a roadside strip, the edge of an agricultural field, or a schoolyard garden. Therefore, no single organization, Federal or private, can independently shoulder the burden of helping pollinators, and the Task Force has been charged with an "all hands on deck" approach to promoting the health of honey bees and other pollinators.

The Strategy knits together commitments and plans from many Federal departments and agencies, bringing a variety of missions and programs to bear toward a single, unified goal—promoting the health of the nation's pollinators. The Federal government is the largest land manager in the Nation and through its programs can also coordinate with private sector actions. In response to the Presidential Memorandum, land management agencies are identifying lands to manage for new and better pollinator habitats: the U.S. Environmental Protection Agency (EPA) is working to balance the unintended consequences of chemical exposure with the need for pest control; the U.S. Department of Agriculture (USDA) is looking to expand pollinator habitats, particularly summer foraging areas, under the Conservation Reserve Program; and habitat opportunities are being found in new and creative places, such as on rights-of-way and other easements.

One innovative approach with great potential is the inclusion of pollinator-friendly landscaping at Federal facilities. Beneficial landscaping and gardens are already in place at a number of Federal facilities, such as the Smithsonian Institution, the National Zoo, USDA, and the White House Pollinator Garden, with others being planned by the Departments of Transportation, Interior, Defense, and State, the EPA, and others.

This Strategy outlines three overarching goals for action by Federal departments and agencies in collaboration with public and private partners:

1. Reduce honey bee colony losses during winter (overwintering mortality) to no more than 15% within 10 years. This goal is informed by the previously released Bee Informed Partnership surveys and the newly established quarterly and annual surveys by the USDA National Agricultural Statistics Service. Based on the robust data anticipated from the national, statistically-based NASS surveys of beekeepers, the Task Force will develop baseline data and additional goal metrics for winter, summer, and total annual colony loss.
2. Increase the Eastern population of the monarch butterfly to 225 million butterflies occupying an area of approximately 15 acres (6 hectares) in the overwintering grounds in Mexico, through domestic/international actions and public-private partnerships, by 2020.
3. Restore or enhance 7 million acres of land for pollinators over the next 5 years through Federal actions and public-private partnerships.

To achieve these goals, the Task Force developed a series of action plans and resources. Underpinning these goals is the Pollinator Research Action Plan (PRAP 2015), designed to focus Federal efforts on producing the scientific information needed to understand, minimize, and recover from pollinator losses. Task Force agencies also developed pollinator Best Management Practice (BMP) guidance for Federal buildings and designed and natural landscapes. Federal agencies are identifying pollinator-beneficial plants that meet nutritional needs of honey bees and other pollinators. The National Seed Strategy for Rehabilitation and Restoration will develop a seed bank of appropriate plants to support restoration activities and to help ensure a stable, economical supply of diverse native plants.

Increasing the national awareness of the importance of pollinator conservation is addressed in agency plans for public outreach and education. These plans constitute a multifaceted portfolio of public education and outreach strategies for multiple audiences: individuals; small businesses and corporations; schools, libraries, museums, and other educational venues; demographically diverse audiences; and Federal land-management staff.

Understanding that the Federal government cannot act alone in promoting pollinator protection, the President also identified the need for public-private partnerships. The Strategy includes recommendations and guidance for developing public-private partnerships to build on Federal efforts encouraging the protection of pollinators and increasing the quality and quantity of pollinator habitat. The Task Force welcomes partnership ideas, and will prepare a Partnership Action Plan within six months of release of this Strategy.

As pollinator science matures and our information about pollinators becomes more robust, so too will the long-term Federal strategy. Specific goals and milestones are identified in the Strategy, along with associated timelines and metrics for evaluating the Strategy's success. Progress toward these goals and actions will be assessed and publicly disseminated annually.

Introduction

Pollinators are crucial members of various ecosystems, from farmland to wilderness to urban environments. There are an estimated several hundred thousand flowering plant species, many of which depend on pollinators to reproduce (National Research Council 2007). A variety of animals serve as pollinators, *e.g.*, bees, wasps, flies, butterflies, moths, bats, beetles, and birds. The attributed value of crops that are directly dependent on insect pollination was estimated at $15 billion in 2009 in the United States (Calderone 2012).

Domestic Losses of Honey Bees

Honey bees, the most recognizable pollinators of hundreds of economically and ecologically important crops and plants in North America, are an introduced insect, brought to the United States in the 1620's by early settlers. Approximately 2,000-3,000 commercial[1] U.S. beekeepers manage their bee colonies as livestock, traveling across the country with their bees to service pollination contracts with U.S. farmers and to support honey production (Calderone 2012).

Honey bees have been in serious decline for more than three decades in the United States, as noted in the National Academy of Sciences report *Status of Pollinators in North America* (National Research Council, 2007). Declines in the number of managed honey bee colonies used in honey production have been documented by the USDA's National Agricultural Statistics Service (USDA 2014). Starting in the 1940's when there were approximately 5.7 million colonies in the United States, the number of managed colonies used in honey production has declined to approximately 2.74 million colonies today (**Figure 1**). Sharp colony declines were seen following the introduction in 1987 of an external parasitic mite (*Varroa destructor*) that feeds on honey bee hemolymph (blood), and again around 2006 with the first reports of a condition referred to as Colony Collapse Disorder (CCD). Colonies diagnosed with CCD exhibit a rapid loss of adult worker bees, have few or no dead bees present in the colony, have excess brood and a small cluster of bees remaining with the queen bee, and have low Varroa mite and Nosema (fungal disease) levels. Colonies exhibiting CCD have insufficient numbers of bees to maintain the colony (*e.g.*, rearing and maintenance of developing young, food collection, and hygiene) and these colonies eventually die. Although CCD has become synonymous with all honey bee colony declines, the actual proportion of losses directly attributable to CCD is low and has been decreasing over the past four years, based on beekeeper winter loss surveys conducted by the Bee Informed Partnership, supported by the USDA (Steinhauer *et al*. 2014).

Although **Figure 1** indicates that the number of managed honey bee colonies has been relatively consistent since 1996, the level of effort by the beekeeping industry to maintain these numbers has increased. Annual surveys of beekeepers since 2006 indicate overwintering losses alone averaging around 31% (**Figure 2**), which far exceeds the 15-17% overwintering loss rate that commercial beekeepers have indicated is an economically sustainable average (Steinhauer *et al.* 2014). When overwintering losses are coupled with colony losses occurring during other times of the year, annual losses can be considerably higher (Steinhauer *et al.* 2014). This is particularly notable in the 2014-15 preliminary report of 27.4%

1. The American Beekeeping Federation classifies beekeepers based on the number of honey bee colonies they maintain: small scale (<25 colonies), sideliner (25 – 300 colonies), and commercial (>300 colonies).

total summer colony losses in the Bee Informed Partnership survey of a subset of national beekeepers, for total annual losses of 42.1% of colonies (Steinhauer et al. 2015).

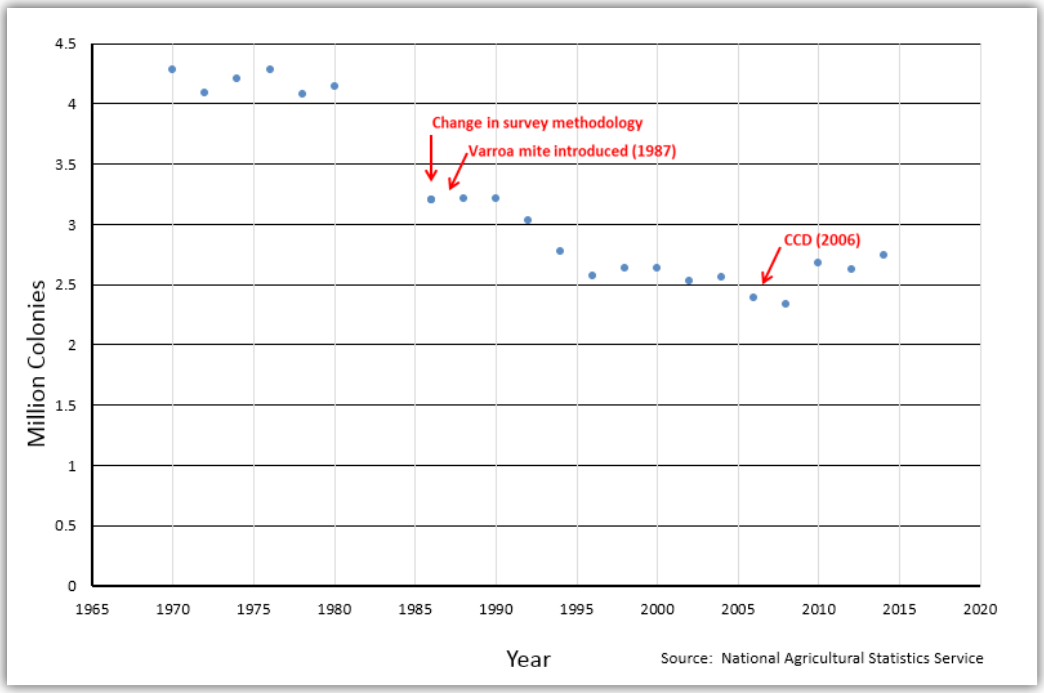


Figure 1. Numbers (in millions) of managed honey bee colonies in the United States used for honey production by year based on NASS survey data. The gap between 1982–1986 reflects the period when the survey was not conducted. The figure illustrates when the Varroa mite was introduced into the United States in 1987, and when Colony Collapse Disorder was first documented in 2006.

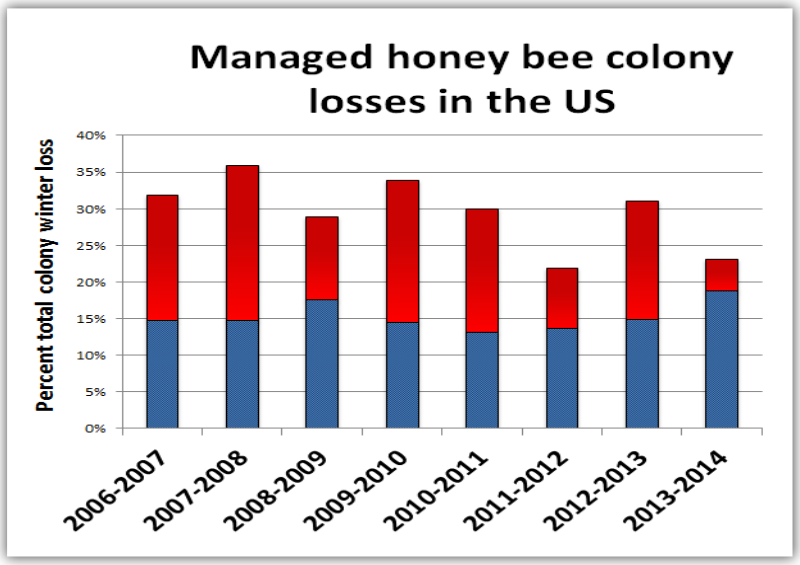


Figure 2. Annual overwintering losses of managed honey bee colonies (October 1–April 1; red bars), and self-declared acceptable mortality level from participant beekeepers (blue bars). Bee Informed Partnership 2014 (http://beeinformed.org/2014/05/colony-loss-2013-2014/).

Meeting the growing demand for pollination services in agricultural production has become increasingly difficult. Beekeepers transport bees long distances to pollinate crops such as apples, blueberries, cherries, squash, and, particularly, almonds. Approximately 60–75% of all U.S. commercial honey bee colonies are required in almond orchards early each spring to fulfill pollination contracts (Bond *et al*. 2014). When overwintering colony losses are high, beekeepers must compensate for these losses by "splitting" one colony into two, supplying the second colony with a new queen bee and supplemental food in order to quickly build up colony strength to fulfill almond pollination contracts. This practice results in increased maintenance costs to both the beekeeper and the orchard grower renting the hives, with hive rental fees for almond pollination rising from approximately $76 per hive in 2005 to over $150 per hive in 2009 (Bond *et al.* 2014).

Researchers studying CCD and other losses attributed to poor colony health have been unable to identify a single cause, and have concluded that losses of honey bee colonies are the result of a complex set of interacting stressors. In May 2013, the USDA and the EPA released a comprehensive scientific report on honey bee health (USDA 2013). The report synthesized the current state of knowledge regarding the primary factors that scientists believe have the greatest impact on honey bee health, including exposure to pesticides and other environmental toxins, poor nutrition due in part to decreased availability of high-quality/diverse forage, exposure to pests (*e.g.*, Varroa mites) and disease (viral, bacterial, and fungal), as well as bee biology, genetics, and breeding. The report's findings are similar to those of the report on the *Status of Pollinators in North America* (NRC 2007), which examined wild (both native and introduced species) pollinators as well as honey bees.

Domestic Losses of Other Pollinators

In addition to honey bees, there are over 4,000 wild bee species in the United States (Moisset and Buchmann 2011). Population declines in the United States have been documented for some populations of non-managed pollinators, *e.g.*, the two-formed bumble bee (*Bombus bifarius*) (Spivak *et al.* 2011; Cameron *et al.* 2011), but little is known about trends for populations of non-managed bees that comprise the majority of pollinators (Winfree *et al.* 2007; Lebuhn *et al.* 2013). Some bumble bee populations are suffering from introduced pests and diseases, potentially transferred from managed bees (Colla *et al.* 2006; McMahon *et al.* 2015). Non-*Apis* bees, butterflies, bats, and other managed or wild pollinators are also impacted by habitat loss and degradation, and there is strong evidence that, for some species, habitat loss has led to population declines (NRC 2007; Potts *et al.* 2010). All pollinators must also cope with the effects of climate change, which may have direct impacts on behavior and physiology, and indirect impacts through floral resource availability and phenology, as well as changing dynamics of pests, pathogens, predators, and competitors (Potts *et al.* 2010; Le Conte and Navajas 2008).

As with honey bees and other managed or wild bee pollinators, there have been marked (~90%) declines in monarch butterfly (*Danaus plexippus*) populations over the past several years (**Figure 3**). In February 2014, President Obama committed to work together with Canadian Prime Minister Stephen Harper and Mexican President Enrique Peña Nieto to ensure the conservation of the monarch butterfly. Much of a monarch butterfly's life is spent completing part of an annual cycle of migration over the course of multiple generations, either across North America between Canada into Mexico (Eastern migration), or between the Rocky Mountains and groves in California (Western migration). The iconic Eastern migra-

tion, in particular, has become less successful for many monarchs because of losses in nectar-producing plants that provide sustenance to the adult butterflies, as well as in the availability of milkweed plants on which developing monarch larvae feed exclusively. Primary stressors of concern for the Eastern population include loss of milkweed breeding habitat in corn and soybean production, loss of breeding habitat due to land conversion, illegal logging and deforestation at overwintering sites, and extreme weather conditions. Natural enemies such as diseases, predators, and parasites, and use of insecticides in agricultural, urban, and suburban areas are also of concern.

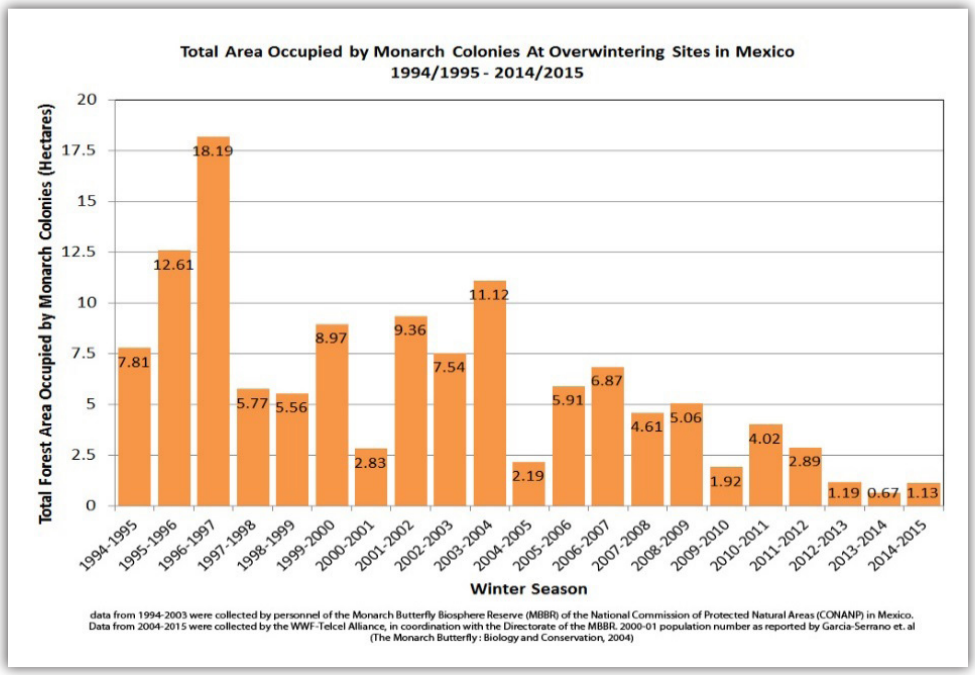


Figure 3: Area of forest occupied by colonies of hibernating monarch butterflies in Mexico from 1994 –2015 (Graph courtesy of the Monarch Joint Venture).

Determining the current status of insect pollinator communities, documenting shifts in distribution and abundance of various species, and refining methodologies for documenting changes remain important areas of research (Lebuhn *et al.* 2013), along with developing taxonomic capacity to identify the thousands of North American bee species. Additional research is also needed on the value of pollinators in natural systems, which is much more difficult to discern than for managed honey bees. The economic value of managed non-*Apis* bees, *e.g.*, blue orchard bees (*Osmia lignaria*), alfalfa leafcutting bees (*Megachile rotundata*), bumble bees (*Bombus spp.*), etc., has not been well-quantified, despite the fact that these species are highly effective crop pollinators. Wild, native bees also provide the majority of pollination that helps maintain natural plant communities which contribute to a variety of valuable ecosystem services, including carbon sequestration, water filtration, and erosion control (NRC 2007). Simultaneous declines in wild and managed pollinator populations globally, with noted decreases in honey bees, bumble bees, and monarch butterflies, have brought into focus the importance of pollinator conservation (Cameron *et al.* 2011; NRC 2007; Pettis and Delaplane 2010; vanEngelsdorp *et al.* 2009).

International Considerations

Declines in honey bees, wild bees, and other pollinators are not unique to the United States. Across the globe, similar patterns of decline in wild and managed pollinator populations have been documented over similar timespans (Biesmeijer *et al.* 2006). From 1985–2005, the number of managed honey bee colonies declined in many countries in Europe, along with marked declines in beekeepers (Potts *et al.* 2010). A number of international organizations have undertaken efforts to better understand the causes and magnitude of pollinator population declines. Such global activities, including the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), as well as efforts through the International Bee Research Association (IBRA), inform and are informed by work being undertaken in the United States. Federal agencies, such as the USDA and the EPA, are working with their counterparts in the Organisation for Economic Cooperation and Development (OECD) and with researchers internationally through the International Commission on Plant-Pollinator Relationships (ICPPR) and the Colony Loss (COLOSS) Network to understand the factors associated with global declines in pollinator species and how these declines can be mitigated. International cooperation, financially and scientifically, leverages U.S. investments with investments being made by other countries, and also provides an opportunity for the United States, with its diversity of ecosystems and large Federal and Federally-funded research community, to contribute to solving this global challenge.

In many countries, estimates for pollinator populations and the magnitude of different possible stressors are not available for comparison to what is being experienced in this country. The forthcoming IPBES assessment on pollination, pollinators, and food production, due to be completed in 2015, may reveal other sources of information or significant international gaps in understanding the magnitude of losses and the potential consequences if left unchecked. This assessment will also address monetary and non-monetary ecosystem services provided by pollinators across the globe.

Establishment of the Pollinator Health Task Force

Given the breadth, severity, and persistence of pollinator losses, President Obama issued his June 20, 2014 Presidential Memorandum, "Creating a Federal Strategy To Promote the Health of Honey Bees and Other Pollinators" (FR Doc. 2014-14946; White House 2014), to the heads of Federal departments and agencies, calling for the creation of a Federal strategy to promote the health of honey bees and other pollinators. Citing the critical roles that pollinators play in contributing to the economy, providing a nutritious supply of fruits, nuts, and vegetables, and maintaining a variety of valuable ecosystem services, the President charged Federal departments and agencies with taking steps to reverse pollinator losses and to help restore pollinator populations. The Federal government is poised to lead this effort, given its broad national perspective and ability to identify and prioritize goals and programs that extend beyond state and national borders. Understanding that the Federal government cannot act alone in promoting pollinator protection, the President also identified the need for public-private partnerships as well as increased citizen engagement.

To accomplish this effort, the President created the Pollinator Health Task Force, co-chaired by the Secretary of Agriculture and the Administrator of the Environmental Protection Agency. In addition to USDA and EPA, the Task Force was chartered to include representation from the following departments and agencies:

- Council on Environmental Quality (CEQ);
- Department of Defense (DOD);
- Department of Education (ED);
- Department of Energy (DOE);
- Department of Housing and Urban Development (HUD);
- Department of the Interior (DOI);
- Department of State (DOS);
- Department of Transportation (USDOT);
- Domestic Policy Council (DPC);
- General Services Administration (GSA);
- National Science Foundation (NSF);
- National Security Council (NSC);
- Office of Management and Budget (OMB);
- Office of Science and Technology Policy (OSTP); and,
- Such executive departments, agencies, and offices as the Co-Chairs may designate.

Since its initial formation, the Task Force has expanded to include representatives from the Smithsonian Institution (SI) and the Federal Emergency Management Agency (FEMA).

To advance the state of knowledge used to inform pollinator protection efforts through interagency collaboration, the Task Force developed a Pollinator Research Action Plan (PRAP 2015) and Pollinator-Friendly Best Management Practices for Federal Lands (USDA/DOI 2015), to assist agencies in developing and enhancing pollinator habitat. The Task Force also oversaw the development of agency public education and outreach plans. The *National Strategy to Promote the Health of Honey Bees and Other Pollinators* (Strategy) is comprised of these materials, with an emphasis on public-private partnerships. The Strategy addresses the key stressors that impact pollinator health, notably: (1) nutrition, with a focus on providing adequate forage resources for pollinators; (2) land-use policies and practices to increase forage and nesting resources for a variety of pollinators; (3) management of arthropod pests and disease pathogens; (4) pesticides; and (5) rearing issues, including bee biology, genetics, and breeding. To be successful in reversing pollinator declines, it is vital that the Strategy address all of the above factors and the complex interactions between each of these factors that are likely contributing to declines.

The Presidential Memorandum empowers the Task Force to move forward with a broad range of activities and partnerships that collectively are intended to reverse pollinator declines. The Strategy focuses on both immediate changes that can be made to improve pollinator health, consistent with the best-available science to support these actions, as well as efforts to improve pollinator health over the long term. In implementing the Strategy, Federal agencies will lead by example and will also more fully engage public and private partners in academia, non-governmental organizations, private industry, state and local governments, foundations, and private citizens.

Development of the National Pollinator Health Strategy

The Presidential Memorandum instructed the Task Force to develop a National Pollinator Health Strategy that incorporates research and development, outreach, and public-private partnerships. In addition, building on agency-specific actions, either identified in the Presidential Memorandum or through enhanced actions by individual agencies, the Strategy seeks to identify opportunities and initiatives for addressing both short-term and long-term habitat improvement that will benefit overall pollinator health. Through revised guidance, Federal contracting procedures, and regulatory actions, a priority outcome of this Strategy is to institutionalize changes into Federal initiatives to ensure that pollinator health actions have longevity and lead to continuing improvement. While the focus of the Strategy is on improving pollinator health, many of the recommendations identified in the Strategy will also have collateral benefits in improving ecosystems more broadly, through encouraging development and maintenance of native habitats and more ecologically sustainable land management practices. This is especially true for efforts to protect the monarch butterfly, which is a minor pollinator but a major indicator of biodiversity and ecosystem health.

Target Outcomes

A key to the Strategy is the inclusion of metrics for measuring successes and to identify the need to adjust actions in advancing the Strategy's goal, which is to restore the health of affected pollinator species and prevent further unacceptable declines. Success will be assessed through three outcome metrics: (1) returning honey bee colony health to acceptable levels (approximately 15% overwintering loss, a level from which beekeepers are capable of successfully dividing surviving healthy colonies to remain economically viable); (2) increasing monarch butterfly populations to historic averages to ensure successful continuation of annual migrations; and (3) increasing and maintaining cumulative pollinator habitat acreage in critical regions of the country. Numeric outcome metrics are quantified in **Table 1**.

Table 1. Overarching Pollinator Health Outcome Metrics

1. Honey Bees: Reduce honey bee colony losses during winter (overwintering mortality) to no more than 15% within 10 years. This goal is informed by the previously released Bee Informed Partnership surveys and the newly established quarterly and annual surveys by the USDA National Agricultural Statistics Service. Based on the robust data anticipated from the national, statistically-based NASS surveys of beekeepers, the Task Force will develop baseline data and additional goal metrics for winter, summer, and total annual colony loss.[a]
2. Monarch Butterflies: Increase the Eastern population of the monarch butterfly to 225 million butterflies occupying an area of approximately 15 acres (6 hectares) in the overwintering grounds in Mexico, through domestic/international actions and public-private partnerships, by 2020.
3. Pollinator Habitat Acreage: Restore or enhance 7 million acres of land for pollinators over the next 5 years through Federal actions and public/private partnerships.

[a] Based on the success of research, it is hoped that overwintering losses would be further reduced to pre-Varroa mite levels.

The outcome metrics identified in **Table 1** address the President's directive to expand Federal efforts to reverse pollinator losses and to help restore populations to healthy levels. Due to the critical importance of pollinators to the economy, including to agricultural production[2] and general ecosystem services, the ultimate objective of the Task Force is to ensure a level of pollinators that would sustain agricultural production and protect the health of the environment for the foreseeable future. In that context, the Task Force's first target outcome is to improve honey bee population health by reducing honey bee winter losses by no less than 50% from current levels, which have averaged around 30% nationwide over the past 5 years (Steinhauer *et al*. 2014), to a sustainable 15% loss rate within 10 years (by 2025). This reduction in the 5 year average of winter losses would be accomplished in stages: (1) by 25% (*i.e*., to a 22% colony loss rate) by 2020; and, (2) by a total reduction of 50% by 2025. This overall reduction to 15% yearly winter losses would restore an economically sustainable system for beekeepers and growers who depend on pollination services. This is an ambitious goal and the Task Force recognizes that yearly fluctuations due to the impacts of unknowable and difficult-to-mitigate variables (*e.g.,* drought, severe winter weather, or new bee maladies) may result in losses in a given year that are higher than the target average. The Task Force also acknowledges, based upon ongoing research discussed in the PRAP (2015), the possibility of further reductions, perhaps to pre-Varroa mite levels.[3]

Summer losses also lead to cumulative economic stress on beekeepers, notably the 2014–15 preliminary colony loss results from the Bee Informed Partnership. In summer 2014 (April–October) the colony loss rate was reported at 27.4% among a subset of national beekeepers responding to the survey. Combined with overwintering losses, the total annual colony loss (April 1, 2014–March 30, 2015) was 42.1% (Steinhauer et al. 2015). Overwintering mortality data are based on a different survey respondent pool, and for 2014–15 overwintering mortality was reported at 23.1%. The summer and annual colony loss data were first included in the Bee Informed Partnership survey in 2010–11.

The Task Force's second target outcome is to increase the Eastern population of the monarch butterfly to 225 million butterflies occupying an area of approximately 15 acres (6 hectares) in the overwintering grounds in Mexico by 2020. This goal represents the approximate average winter population level from 1994-2014 and also assumes an estimated density of 37.5 million butterflies per hectare. The Eastern monarch population has experienced a significant decline over the past 20 years. The 2014-2015 overwintering count of 56.5 million butterflies for the Eastern population was the second-lowest count on record, representing a population decline of 82% from the 20-year average. The occupied overwintering habitat in 2014-2015 measured only 2.8 acres (~1.1 hectares).[4] The Task Force views a target of 225 million butterflies occupying an area of approximately 15 acres (6 hectares) for the Eastern migration

2. Honey bees alone are estimated to support the cultivation of 90 – 130 crops which directly or indirectly account for up to a third of the U.S. diet (Bond et al. 2014).

3. Winter colony loss has averaged 28% nationwide over the last five winters for which we have data (2009-2010 to 2013-2014. Estimates from the Bee Informed Partnership, www.beeinformed.org), compared to an estimated average annual loss of 15% prior to the arrival of the Varroa mite in 1987 and the sharp rise in Colony Collapse Disorder in 2006. Prior to 2006, there was no coordinated effort to collect data on winter survival nationwide. Estimates of 15% colony loss prior to 1987 are anecdotal from beekeepers and bee researchers. In 2006, the Bee Informed Partnership began collecting data on winter losses, as well as data on winter losses from beekeepers who felt their losses were "acceptable." Since 2006, the average self-reported rate of acceptable losses is 15%.

4. Data from Rendón-Salinas, E., A. Fajardo-Arroyo, and G. Tavera-Alonso. 2014. Forest surface occupied by monarch butterfly hibernation colonies in December 2014 World Wildlife Fund – Mexico report. Available from https://www.worldwildlife.org/publications/forest-surface-area-occupied-by-monarch-butterfly-hibernation-colonies-in-december-2014.

as the best indicator of holistic species health. The Task Force is also mindful of the importance of the Western population in maintaining species viability across the continent.

The Task Force's third target outcome, restoration and enhancement of 7 million acres of pollinator-friendly habitat, addresses the importance of providing new and diverse nectar and pollen resources for honey bees and wild pollinators, including the monarch butterfly. Restoration of habitat is defined as the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning the majority of natural functions to the lost or degraded native habitat (16 USCS §3772 (5)); whereas habitat enhancement is defined as the manipulation of the physical, chemical, or biological characteristics of an undisturbed or degraded site to heighten, intensify, or improve specific functions or to achieve a specific purpose. As such, habitat enhancement represents a more targeted effort.

The habitat target outcome is based on preliminary expert estimates regarding the need to offset annual losses of pollinator habitat, plus provide additional acres to reverse past losses. These estimates are preliminary until comprehensive peer-reviewed literature becomes available to quantify the total magnitude of habitat losses, or needs for recovery. The estimates will be refined to reflect the findings of ongoing research in the PRAP (2015) to better measure pollinator status and acreage needs, and to identify those land areas and corridors most valuable and amenable to enhancement or restoration. For instance, the U.S. Geological Survey (USGS) Powell Center is working to identify habitats and corridors most valuable for directing resources for conservation of the Eastern population of the monarch butterfly, and the USDA is focusing Conservation Reserve Program (CRP) and Environmental Quality Improvement Program (EQIP) resources on the five upper Midwest States (South Dakota, North Dakota, Minnesota, Wisconsin, Michigan) that are central to honey bee summer forage. All actions will be subject to adaptive management as this research becomes available, in recognition of the fact that reversing pollinator losses is a long-term process requiring the incorporation of pollinator health considerations in routine agency and private-sector actions, rather than a one-off solution.

The habitat target outcome is also consistent with actions included by agencies in this Strategy. These actions include, but are not limited to: USDA resources applied to CRP and EQIP pollinator enhancements, and national forest and grassland acreage; DOI actions to restore or enhance lands through direct restoration action, along with the inclusion of pollinator-friendly native seeds in all post-fire revegetation and fuels/green stripping projects; U.S. Army Corps of Engineers (USACE) implementation of pollinator best management practices at its facilities; and numerous other actions itemized by Federal agencies to increase pollinator habitat. Federal agencies will also be working with the private sector to improve pollinator habitat on lands not managed by the Federal government, including state- and locally-managed lands, such as parks and highway rights-of-way, and privately-owned lands ranging from home gardens to corporate and philanthropically-sponsored acreage. The target outcome anticipates that fifty percent of acreage improvement will be sourced from Federally-managed lands, and fifty percent through working with partners to create or enhance habitat on state, locally-managed, and private lands.

Measuring Success

To achieve these target outcomes, each relevant action undertaken by a Federal agency will also include a timeline and metrics for evaluating the success and progress toward achieving one or more of these target outcomes. As the science developed through the Pollinator Research Action Plan (2015) matures, adjustments and/or enhancements to Federal actions and overarching goals and target outcomes also may be warranted. With expanding implementation of the Strategy, and as partnership efforts continue to grow, additional metrics and measures will be added to aid in assessing the success of the Strategy.

Periodic follow-up and reporting of agency performance is also vital in demonstrating to the public the Federal government's commitment to reversing pollinator declines and improving pollinator health. To this end, Task Force agencies are to report annually on all metrics to the Task Force Co-Chairs, who will publicly disseminate the results on an annual basis so that the general public can monitor the progress each agency is making in fulfilling the commitments detailed in this Strategy, including collaboration with public and private stakeholders.

Budget Requests for Pollinator Health

The actions contemplated in this Strategy are not occurring *de novo* or in a vacuum. Considerable Federal resources are already being directed toward honey bee, monarch butterfly, and other pollinator health-related issues, and a number of significant documents have investigated these issues. For instance:

- In 2007, the National Research Council published its report emphasizing risks posed to pollinator populations, stimulating further action.
- A Federal action plan for honey bees, the 2007 Colony Collapse Disorder Action Plan (USDA 2007), built on existing knowledge and resource bases within agencies.
- The 2008 North American Monarch Conservation Plan was developed by a team of experts from Canada, Mexico, and the United States under the auspices of the Commission for Environmental Cooperation (CEC 2008).

These efforts have proven insufficient to reverse declines, as demonstrated through the colony loss and butterfly population metrics. To boost Federal engagement with the increased resources necessary to combat the declines, the President's Budget request to Congress for Fiscal Year (FY) 2016 includes major increases over the FY 2015 Enacted Budget for honey bee and pollinator research and habitat improvement (**Table 2**). These budget requests are in addition to agency actions to redirect, focus, and coordinate existing resources toward this challenge. A number of such actions, including development of best management practices, are being highlighted in agency implementation plans.

The FY 2016 President's Budget (**Table 2**) includes over $82 million in funding ($34 million above FY 2015 enacted) for DOI, EPA, and USDA, specifically targeted to address pollinator health, including Colony Collapse Disorder. Other Federal agencies also contribute to pollinator health during the conduct of some of their programs and activities. Specific agency increased resources for pollinator health include:

Table 2. Pollinator-specific proposed Fiscal Year (FY) 2016 budget additions relative to the Enacted FY 2015 budget for DOI, EPA, and USDA ($ Million).

Agency	Program	FY 2015 Enacted	FY 2016 Budget	Change from 15 Enacted to 16 Budget
DOI	U.S. Geological Survey (USGS)	0.00	1.56	1.56
	DOI Total	0.00	1.56	1.56
EPA	Office of Pesticide Programs	0.00	1.50	1.50
	State and Tribal Assistance Grants	0.00	0.50	0.50
	EPA Total	0.00	2.00	2.00
USDA	National Agricultural Statistics Service (NASS)	2.40	2.90	0.50
	Agricultural Research Service (ARS)	14.19	21.19	7.00
	National Institute of Food and Agriculture (NIFA)	9.66	31.50	21.84
	Economic Research Service (ERS)	0.28	0.28	0.00
	Land Management Programs			
	Farm Service Agency (FSA) Conservation Reserve Program (CRP)	18.00	18.06	0.06
	Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP)	3.00	4.00	1.00
	Animal and Plant Health Inspection Service (APHIS)	1.00	1.00	0.00
	USDA Total	48.52	78.93	30.41
Agencies Total		48.53	82.49	33.96

- U.S. Department of the Interior: Includes $1.56 million in new funding for the USGS to support research priorities identified through the 2014 Presidential Memorandum on Pollinator Health, including the development of studies, monitoring programs, and decision-support tools for land and resource management agencies, and pollinator habitat models.
- U.S. Environmental Protection Agency: Includes $1.5 million to further the study of acute toxicity amongst honey bee populations and explore additional risk management options, and $500,000 to augment the work of states and tribes to develop pollinator protection plans.
- U.S. Department of Agriculture: Includes $56 million in research and associated statistical survey programs, including in-house research through ARS, agreements through APHIS, and grants (mainly through a competitive peer-reviewed process) through NIFA, with much of the funding going to land grant institutions to support local and regional pollinator issues at all levels (national, regional, and local), including organic production. Within USDA's suite of voluntary conservation programs, the budget continues to leverage funding within the Environmental Quality Incentives Program and to enhance Conservation Reserve Program covers to increase access to nutritious forage for pollinators in a targeted multi-state core area that is home to more than 65% of the Nation's managed honeybee population during the prime summer forage months (North Dakota, South Dakota, Minnesota, Wisconsin, and Michigan). It also continues

the FY15 budget proposal to monitor existing enrollment in CRP pollinator initiatives, document and quantify the benefits to honey bees and wild pollinators, identify ways to increase the pollinator benefits from CRP land, delineate core habitat areas, and determine the appropriate mechanisms to nearly double the CRP acreage enrolled in pollinator initiatives to 200,000 acres.

The Strategy

Each element of the Strategy is summarized in the following sections. Additional details on agency plans are available in the Appendices. Where specific goals have been identified, timelines for achieving these goals are also identified, as well as metrics for measuring progress. Metrics are expressed as qualitative and/or quantitative measures of progress that can be process-based (*e.g.*, activities directed at achieving a goal) or outcome-based (actual change) as a result of accomplishing a specified goal.

The Strategy includes the following components:

- Pollinator Research Action Plan;
- Plans for expanding education and outreach;
- Opportunities for public-private partnerships; and
- Improving pollinator habitat.

These components provide strong scientific foundations for Federal government action. Considering the public input received during two listening sessions hosted by EPA and USDA in fall 2014, the Federal government has identified a comprehensive set of research and "on-the-ground" actions that will serve as a significant initial effort to improve and ultimately restore pollinator health.

Pollinator Research Action Plan (PRAP)

The Presidential Memorandum called on the Federal government to draft a Pollinator Research Action Plan to include the following elements:

- Studies of the health of honey bees, other managed bees, and wild bees that assess stressors leading to species declines and Colony Collapse Disorder, as well as strategies for mitigation.
- Plans for expanding and automating data collection and data sharing related to pollinator losses, in partnership with the private sector.
- Assessments of wild bee and monarch butterfly population patterns, and modeling of the relationship of those population patterns to habitat variables.
- Development of affordable pollinator-friendly seed mixes and guidelines for evaluating their effectiveness in restoration and reclamation.
- Identification of best practices for minimizing pollinator exposure to pesticides, and new cost-effective ways to manage pests and diseases.
- Creation of strategies for targeting restoration efforts at areas that will yield the greatest expected net benefits for pollinator health.

The Task Force has prepared the "Pollinator Research Action Plan" (PRAP 2015) as a standalone document to accompany this Strategy. The proposed approach in the PRAP (2015) will enable a better understanding of individual stressors, as well as the cumulative influence of these stressors on overall health. Research needs fall into five main areas that overlap and interact to determine pollinator health:

- **Population trends and basic biology:** Assessing the status of pollinator populations requires inventories to establish baseline conditions, with subsequent monitoring and longitudinal studies to detect deviations from the baseline, and causes for those deviations. Priorities for managed bees include expanded quarterly and annual surveys of beekeepers, including questions on management practices and hive losses, and development of technologies to monitor hive health continuously. For wild pollinators, research must address species distributions, population patterns, and habitat use, which are poorly known for many species. These fundamental data can feed into models of the larger system of interacting factors affecting pollinators. Taxonomic capabilities to identify the thousands of North American bee species must also be increased.
- **Environmental stressors:** Many environmental factors have the potential to impact pollinator populations. Information is needed on individual stressors and how they may interact, particularly with regard to the sublethal impacts of pesticides and mite parasites. Research must focus on developing miticides for honey bees that can safely and effectively manage colony infestations. Information is also needed on how these individual stressors interact in real-world situations to cause declines in both honey bees and other pollinators. Best management practices for application to public and private lands require studies of multiple stressors and how they may interact. Collaboration with scientists internationally will add to the information base from which to assess these stressors under diverse conditions and habitat.

- **Land management:** Decisions on how to best manage lands are complex, driven not only by natural resources considerations, but by social and economic influences. Virtually every land management decision requires either implicit or explicit trade-offs among these elements. Decision-support tools are needed to help decision-makers understand and forecast the effects of decisions on pollinators, to assist in understanding the effects of these decisions on an array of values, and to refine best management practices for implementation across landscape types.
- **Habitat restoration:** Pollinator populations depend directly on plant populations, especially native plants. Effective habitat restoration must be appropriate for the desired pollinator species, affordable to establish in the short term, and self-sustaining in the long term. To create more and better pollinator habitat, research is essential to enable the identification of habitat with the highest potential for pollinator benefits, restoration of that habitat through appropriate seed mixtures, and monitoring of the habitat to enable adaptive management.
- **Knowledge curation:** Long-term monitoring and sound research require an extensive and well-curated knowledge base (*i.e.*, data sharing, interoperability, and informatics). This includes traditional data from individual specimens verified with their identification and geographic data, as well as data from emerging technologies such as whole-genome sequencing. The capacity to store information has expanded exponentially in recent years, and maintaining and sharing data that span many different levels of biological organization (*e.g.*, genomic to whole-population data) will aid in understanding patterns in decline and survival.

Together, these main areas represent the bodies of knowledge currently understood to be most critical to the recovery of pollinator populations in the United States and globally. The proposed research is built on a solid foundation of existing data from Federal agencies, as well as academic institutions. Task Force agencies will use emerging research findings to inform other actions in the Strategy, such as updates to BMPs for land management. Timelines for these activities are included in the PRAP (2015). Agencies will support PRAP (2015) activities through prioritization of existing Federal budgetary and staff resources, and collaboration with private sector activities.

Pollinator Public Education and Outreach

The Presidential Memorandum calls for "plans for expanding and coordinating public conservation and education programs outlining steps that Federal, state and private individuals and organizations can take to help address the loss of pollinators." This section of the Strategy outlines the means by which agencies are implementing, and will augment, this requirement to employ effective mechanisms and programs to engage the U.S. public and the broader global community in the health of pollinating species, and to encourage actions that will help restore pollinator populations in their native habitats. It provides guidance to Federal agencies and partners in stimulating public interest in pollinator conservation by identifying key internal and external audiences, crafting appropriate messages for those audiences, and ensuring effectiveness and relevancy of the techniques used to communicate.

The Task Force recommends coordination of a multifaceted portfolio of public education and outreach strategies intended to attract multiple audiences including, but not limited to: individuals; small businesses and corporations; schools, libraries, museums and other educational venues; demographically diverse audiences; organic certifiers; and Federal land management staff. A variety of education and outreach materials, programs, and media already exist to enlist the participation of these different audiences in actions that benefit pollinators. Where not available, materials will be developed by respective Federal agencies as part of these actions. These materials will be used to develop a set of core messages, talking points, and infrastructure as resources to support the efforts of public agencies and partners working on behalf of pollinators. Four core principles guide the scope of intended actions:

- Pollinator conservation is a shared national responsibility.
- The demographically diverse U.S. public requires customizable strategies of communication, education, and outreach. The key messages should be relevant to each target audience and well understood by multicultural audiences.
- The actions of a single person can make a difference—every citizen can contribute to pollinator conservation and should have the opportunity to become engaged in ways that are meaningful.
- Agencies involved in implementing the Presidential Memorandum should seek to educate and empower citizens as partners in pollinator conservation.

A key component for success is developing partnerships that foster public education and awareness pertaining to pollinator protection and habitat conservation, and leveraging existing resources and relationships. By implementing outreach actions and developing appropriate media, Federal agencies will work collaboratively with the private sector to actively engage existing and new partners in pollinator stewardship. Long-term implementation rests heavily on expanding these public-private partnerships to amplify messaging and reach the scale and longevity necessary to effect change. To achieve these ends, outreach and education partnership development will be a central component of the recommended future Partnership Action Plan to be developed and implemented by the Task Force over the next six months (below).

Current agency activities and commitments to advancing the Presidential Memorandum include:

- **Development of an interagency pollinator outreach toolkit:** The National Park Service (NPS) will take the lead in developing an interagency pollinator public outreach toolkit, which will include templates for news releases, posters, event protocols, and brochures, developed in collaboration with, and available to, other Federal, state, and local agencies and tribal governments. The toolkit will include a standard template with basic messages about pollinators, which can be customized with photos and place-specific information. Interpretive sign templates with standardized pollinator messages will be made available for agencies to customize for use in areas surrounding stewardship activities, at restoration sites, and at visitor centers. NPS will also host citizen science activities, such as a pollinator themed nation-wide Biodiversity Discovery Events (Bioblitz) in as many as 200 NPS parks/units, establishing new pollinator-centric projects with NPS Biodiversity Youth Ambassadors for their schools and communities, and incorporating pollinator citizen science and monitoring projects into the NPS Migratory Species Initiative.
- **Connection of school communities to pollinator education and habitat resources:** U.S. Department of Education Green Ribbon Schools (ED-GRS) was created in 2011 to inspire schools, districts, and institutions of higher education (IHE) to strive for excellence by highlighting exemplary environmental practices and resources that all can employ. ED-GRS recognizes progress in reducing environmental impact and costs, improving the health and wellness of schools, students, and staff, and providing environmental education. ED has awarded over 280 schools, districts, and post-secondary institutions in the first four years of the recognition award (2012–2015). Nearly all of the schools have native plant gardens, food gardens, pollinator gardens, certified wildlife habitats, and/or Monarch Waystations.[5] ED will further the Presidential Memorandum by adding, to its Green Strides pages, resource links and webinars offered by Federal agencies or non-profits that focus on advancing schools' work to plant native pollinator gardens. Through the use of its newsletter, social media, and Green Strides resources and webinars listings, ED will communicate resources, awards, grants, and challenges to school communities. ED will collaborate with external pollinator non-governmental organizations regarding pollinator garden statistics in State submissions.
- **Engagement of youth and families in pollinator education programs:** USDA will distribute pollinator education materials and facilitate pollinator education programs through their specific supported programs, such as 4-H (Smith-Lever 3(b&c)), Agriculture in the Classroom (AITC), and other youth outreach efforts for use at the state and local level. The US Forest Service (USFS) will engage its Green Schools partners, with a primary focus on the nearly 4,000 Project Learning Tree GreenSchools!, to provide access to pollinator conservation curriculum-based materials and annual GreenSchools! or GreenWorks! grants, many of which will be focused on pollinator habitat restoration. Over 3,000 National Association of Conservation Districts (NACD) "Local Heroes: Your Hardworking Pollinators" materials, partially funded by USDA agencies, NRCS, NIFA and USFS, which contain national educational standards and STEM-based K-8 lesson plans, will be distributed to formal and non-formal educators to reach youth and families.

5. Monarch Watch Monarch Waystation Program http://www.monarchwatch.org/waystations/index.html

- **Expansion of public outreach to farmers and beekeepers:** USDA is working with multiple stakeholders (*e.g.,* Pollinator Partnership, American Beekeeping Federation, American Honey Producers Association, Project Apis m, the Almond Board of California, and the Honey Bee Health Coalition) to leverage partnerships to make the most impact for improving the health of pollinators. As detailed in the Land BMPs, the USFS and the DOI Bureau of Land Management (BLM) are reaching out to stakeholders (*e.g.*, beekeepers, growers, and land managers) regarding opportunities to forage honey bees on managed lands. USDA will be executing memoranda of understanding where appropriate and providing webinars to increase understanding of its programs and the benefits to pollinators. USDA-NRCS has developed brochures and posters to help the public understand the challenges facing bees, as well as the opportunities for conservation support on working lands. NRCS has also partnered with other Federal agencies and the National Association of Conservation Districts, leveraging resources to develop joint pollinator education and outreach materials for STEM-based K-8 lesson plans and Stewardship Week 2015. NIFA provides grants to universities, including Land-Grant institutions, to address high priority research, and also works with U.S. Land-Grant institutions and counties through the Cooperative Extension System (eXtension; http://www.extension.org/ bee_health) to conduct information and technology transfer to stakeholders on pollinator health. USDA will disseminate information through this system and will initiate a national interactive web site where USDA scientists, university research institutions, State Agricultural Experiment Stations (SAES), county extension offices, organic certifiers, and others can share examples of research findings, success stories, best management practices, and other ideas. Outreach will also be conducted to farmers and beekeepers through the state and tribal efforts to develop managed pollinator protection plans.
- **Expansion of participation in National Public Lands Day:** National Public Lands Day (NPLD), organized by the National Environmental Education Foundation, is the nation's largest single-day volunteer effort for public lands. More than 175,000 volunteers and park visitors celebrate at more than 2,000 public land sites in all 50 States, the District of Columbia, and Puerto Rico. In 2014, NPLD volunteers: collected an estimated 23,000 pounds of invasive plants; built and maintained an estimated 1,500 miles of trails; planted an estimated 100,000 trees, shrubs, and other native plants, many of which are pollinator-friendly; removed an estimated 500 tons of trash from trails and other places; and contributed an estimated $18 million through volunteer services to improve public lands across the country. Seven Federal agencies (DOD, USACE, EPA, FWS, USFS, BLM, NPS) as well as nonprofit organizations and state, regional, and local governments participate in this annual day of caring for public lands. NPLD 2015 will take place on Saturday, September 26.
- **Create a unified campaign for National Pollinator Week:** National Pollinator Week is scheduled for June 15-21, 2015. Pollinator Week was initiated and is managed by the Pollinator Partnership, of which many Federal agencies are members. Eight years ago, the U.S. Senate's unanimous approval and designation of a week in June as "National Pollinator Week" marked a necessary step toward addressing the urgent issue of declining pollinator populations. Pollinator Week has now grown to be an international celebration of the valuable ecosystem services

provided by bees, birds, butterflies, bats and beetles. In 2014, pollinator proclamations were signed by the U.S. Secretary of Agriculture, U.S. Secretary of the Interior, and forty-five State Governors. Federal agencies will further expand their participation in National Pollinator Week through events that highlight and share the importance of pollinators including bees, birds, butterflies, and bats.

- **Outreach and education at the Smithsonian Institution:** The Smithsonian Institution (SI) provides public education through a variety of major exhibits with a key focus on pollination. These exhibits include the Butterfly Pavilion, Insect Zoo, and Butterfly Garden and Urban Habitat at the National Museum of Natural History (NMNH). Visitors are provided with signage and educational programs at Garden Fest and Pollinator Week, as well as regular garden tours that highlight the Butterfly and Bird Habitat Gardens. As part of SI's new pollinator-related outreach and education efforts, SI volunteers who interact with museum visitors will receive additional training on pollinators. Youth programs, high school internships, and the Q?rius ("curious") Youth Volunteers program will include information on pollinators under the mentorship of SI scientists, including the opportunity to conduct pollinator-related research and communicate their findings to the public. The web-based Smithsonian Transcription Center relies on internet citizen volunteers to transcribe digitized specimen labels from the SI collections. NMNH will hold crowd-sourcing events to transcribe the recently digitized bumble bee collection records, which represent baseline data on the distribution of bumble bees over the last century. Of the extensive insect collections, 46,000 bumble bee (*Bombus*) specimens are in the process of being digitized and 5,000 honey bee (*Apis mellifera*) specimens are slated to be digitized beginning in 2015. NMNH will use a global transcription event organized across natural history museums around the world to promote bumble bees as important pollinators. With Smithsonian Gardens and the National Zoo, NMNH will expand programming for Pollinator Week and integrate messaging related to the campaign. A significant digital outreach component is on-site at NMNH, which includes a Butterfly Pavilion Facebook page as well as opportunities to promote research and programs on the main NMNH Facebook, Twitter, Instagram accounts and blogs. SI's Encyclopedia of Life (EOL) is partnering with the Global Biotic Interaction project to build TraitBank (http://eol.org/traitbank), an open platform for biotic trait and association data (derived from museum specimens, citizen science observations, and the literature) used for modeling species interactions.
- **Training future pollinator scientists:** The National Science Foundation (NSF) funds basic research in science and engineering through competitive merit review of grant proposals submitted primarily by American universities and research institutions. NSF pollinator-focused research comprises over 250 currently funded projects, totaling over $113 million. Of these projects, most (175 awards) are in the biological sciences, with many focusing on pollinator systems. These include the interactions of plants and their pollinators, changes in pollinator communities in agricultural and natural landscapes, and biodiversity of key pollinator groups in the United States and around the world. Other funded projects address: the basic biology of insect, bat, and bird pollinators; new tools to aid in the study of pollinators, such as better predictive models to monitor butterfly distribution and migration; new tools to digitize museum

collections of pollinators; and studying ecosystem services, such as insect control provided by bats and other pollinators. All of these NSF-funded science research projects include broader efforts aimed at training the next generation of scientists and/or educating the public, as well as expanding the knowledge base with respect to pollinators and their environment. Specific funding for education projects include a film about butterfly migration for the Maryland Science Center and Project Budburst, a component of the National Earth Observation Network (NEON), which encourages citizen scientists to collect and share data on the timing of plant flowering.

- **Provision of staff education on Federal pollinator guidance documents and resources:** Effective pollinator protection at Federal buildings requires GSA to educate key staff on best practices and underlying scientific dynamics embodied in guidance documents. GSA has provided training webinars to staff on sustainable land development and design via the Sustainable Sites Initiative (SITES) and the Lady Bird Johnson Wildflower Center. The agency now has an additional agreement with the Director of the U.S. Botanic Garden to develop and provide GSA with a learning module on pollinator basics for design and construction professionals. This will allow GSA professional design staff to become educated on the subject as part of their annual continuing education requirements to maintain accreditations by the American Society of Landscape Architects (ASLA), American Institute of Architects (AIA), and American Planning Association (APA).
- **Advancement of international public diplomacy on pollinators:** The Department of State will complement and amplify existing and future on-the-ground actions with pollinator-themed social media. Starting with the rollout of the Strategy, U.S. and overseas diplomatic missions' social media platforms will be used on a weekly and monthly basis, respectively, to reach and influence a global audience about the U.S. government's perspectives on the importance of pollinators to biodiversity, food security, and sustainable development globally.

Metrics for Pollinator Public Education and Outreach:

National Park Service (NPS)

- Completion of interagency pollinator public outreach tool kit by summer 2015.
- Documentation of number of parks/units engaged in BioBlitz.
- Documentation of number of schools incorporating pollinator citizen science/monitoring projects.

U.S. Department of Education (ED)

- ED will update its Web resources with pollinator information by June 2015. ED will post outreach materials to its 15,000 Green Strides recipients as requested, consistent with ED policies and statutory responsibilities.

U.S. Department of Agriculture (USDA)

- Initial materials to increase public understanding of USDA programs and how they benefit pollinators will be developed and completed by USDA by June 2015.
- National interactive web site will be operative by September 2015.

Smithsonian Institution (SI)

- SI will document the number of visitors to pollinator facilities.
- SI will measure progress in building and expanding the public DNA Barcode Library that holds data for pollinating taxa and flowering plants by monitoring the number and diversity of DNA barcode records representing native plants and pollinating animals that are added to the DNA Barcode Library each year.
- SI will measure progress on the TraitBank initiative by tracking how many pollinating species and host plant species are added to Encyclopedia of Life (EOL) and the number of species association data modeled.

National Science Foundation (NSF)

- NSF will document the numbers of research awards related to pollinators.

General Services Administration (GSA)

- Complete the learning module on pollinator basics for design and construction professionals; training anticipated to be completed by end of the third quarter of FY15.
- Document the number of training webinars to staff on sustainable land development and design; document the number of staff trained.

Federal participation in National Public Lands Day

- Task Force agencies will estimate the number of pollinator-specific activities conducted as part of NPLD. Participating agencies include DOD, USACE, EPA, FWS, USFS, BLM, and NPS.

Department of State (DOS)

- Document the reach of DOS pollinator-themed social media to reach and influence a global audience about the U.S. government's perspectives on the importance of pollinators to biodiversity, food security, and sustainable development globally.

Public-Private Partnerships

The value of leveraging Federal investments through public-private partnerships has been a basic tenet of the Obama Administration. All aspects of the response to the pollinator health issue have the potential for partnerships, whether planting pollinator gardens with seed provided by companies, enlisting farm and forestry organizations, or encouraging the expansion of pollinator habitat on working lands. These opportunities build on the many existing partnerships already in motion in response to the NRC (2007) report and existing honey bee action and monarch butterfly conservation plans and independent efforts.

White House engagement in partnership opportunities to benefit pollinators began with an April 2014 invitation and meeting in the Eisenhower Executive Office Building among stakeholders. Evident from this meeting was a broad and enthusiastic recognition of the need for coordinated action on pollinator health across state and local government, beekeepers, academia, farmers, environmental groups, industry, and philanthropic organizations. This enthusiasm and willingness to contribute was further evident on release of the Presidential Memorandum, and at two listening sessions held in November 2014 by EPA and USDA that provided further opportunities for public engagement.

Indeed, the number, intensity, and variability of interested stakeholders mirrors the complexity and scale of the problem of restoring pollinator health. This diversity highlights the importance of coordination among partnership efforts to sustain this endeavor over the long-term, prevent duplication of effort, facilitate entry of new participants, and retain momentum. This coordination can leverage and enhance the critical work of the network of partners seeking to work together to meet the President's request for an all-hands-on-deck approach.

The Task Force strategy to facilitate partnerships both identifies and supports existing core stakeholder collaboration, while encouraging new collaborations where appropriate. The goal is to make it easy for new parties to participate, without reinventing existing coordination pathways and activities. This partner engagement structure includes:

- **Coordination of activities within the Federal government** through the Pollinator Health Task Force, in cooperation with the Trilateral Committee for Wildlife and Ecosystem Conservation and Management (United States, Mexico, Canada).
- **Coordination with non-Federal entities** through existing arrangements led by various Task Force agencies and reporting back to the Task Force. These existing arrangements include close liaison with state, local, and tribal governments, and through national and regional associations that represent stakeholder groups and routinely interact with related Federal agencies. Examples include the American Association of State Highway and Transportation Officials (AASHTO), Edison Electric Institute (EEI), National Association of Conservation Districts (NACD), etc.
- **Facilitation of a limited number of new partnership arrangements,** but only where gaps in existing partnerships and infrastructure have been identified. A prime example is the initial sponsorship by the FWS of the National Fish and Wildlife Foundation (NFWF) Monarch Butterfly Conservation Fund that enables private-sector conservation efforts. This fund provides an opportunity for engagement by industry, philanthropy, and citizens for independent, well-

vetted, and readily-implemented actions to support monarch butterfly conservation. Similar activities are underway through the Pollinator Partnership-coordinated North American Pollinator Protection Campaign, and with the Honey Bee Health Coalition on further engagement of the agricultural community and industry in improving pollinator health. The USDOT and FWS will explore new opportunities to promote habitat near the Interstate-35 corridor, in close cooperation with the states, to promote pollinator habitat conservation and pollinator health.

The need for these partnerships emphasizes the original principle in the Presidential Memorandum for a collaborative approach to changing the fundamental understanding of pollinators, the ecosystem services they provide, and the need for an "all hands, all lands" approach to effectively manage pollinator health.

Partnership coordination is necessary for each of the research, education, and habitat components of the Presidential Memorandum. Research activities are being coordinated among Federal scientists and partners in academic institutions as well as the private sector. Outreach is also continuing and expanding on public-private partnerships to promote the adoption and implementation of practices that benefit pollinators and their habitat, provide assistance in transitioning to more sustainable land management practices, and increase the public's understanding of the role of pollinators and their contributions to the economy and a nutritious and secure/sustainable food supply.

The Federal government is also participating in international efforts to understand and mitigate factors associated with pollinator declines, through organizations such as the:

- Organisation for Economic Cooperation and Development (OECD) Pesticide Effects on Insect Pollinators
- Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)
- International Commission on Plant-Pollinator Relationships (ICPPR)
- Colony Loss (COLOSS) Network
- Food and Agriculture Organization (FAO)
- International Union for Conservation of Nature (IUCN) Bumblebee Specialist Group.

States and local municipalities offer the first options for partnership opportunities, through complementary and shared responsibilities for land and species management, and through their expertise and implementation opportunities on the ground. States and municipalities have central roles in many of the habitat activities noted above. The Presidential Memorandum places particular emphasis on working with states to increase consideration for pollinators in their planning actions.

- **Addressing pollinators in State Fish and Wildlife Plans:** The FWS is partnering with the Association of Fish and Wildlife Agencies (AFWA) and encouraging states to include pollinators and the monarch butterfly as Species of Greatest Conservation Need in their State Wildlife Action Plans (SWAPs). FWS is providing tools to assist states in expanding education and understanding of pollinator conservation, and the value of including pollinators in SWAPs. Doing so will allow states to use a portion of their State Wildlife Grant funds for direct pollinator conservation. States

are required to update their SWAPs by October 2015 (this date is not related to the Presidential Memorandum, but required to receive FWS State Wildlife Grant funding). The 2015 State Wildlife Grant competitive program is offering an additional funding opportunity for states to address pollinators in their SWAPs.

- **Pollinator friendly native vegetation at cleanup sites:** EPA works with states, communities, and responsible parties to assess and clean up contaminated sites. In 2009, EPA issued new Principles for Greener Cleanups that not only protect human health but also allow communities and other stakeholders to promote beneficial, protective, future uses of the property. These green remediation principles include consideration of five elements: energy use, air pollutant emissions, water use, materials management, and land management/ecosystems protection. Pollinator-friendly native plantings can be incorporated in landfill coverings to achieve these goals. For example, 25 acres of contaminated land at Barksdale Air Force Base in Louisiana were seeded with native, drought-resistant wildflowers, following an initial cover with grass for surface erosion control. This action saves $1,800 each year in fuel and labor costs as native plant species need infrequent moving. EPA will expand opportunities for pollinator-friendly plantings in green remediation and green infrastructure activities, commencing with a renewed emphasis on pollinator-friendly planting opportunities in green remediation reference materials and policies.
- **Task Force Partnership Action Plan:** Recognizing the scale and scope of the partnership challenge, the Task Force will prepare a new Partnership Action Plan to implement this Strategy. The Plan will build on and amplify the many Federal actions advanced under the Presidential Memorandum, by increasing linkages and coordination with, and support for, complementary state and private-sector actions. The Plan will also address means to expeditiously expand pollinator health initiatives to achieve the scale necessary to make meaningful and long-term changes, and ways to institutionalize these changes into business models and public understanding. Coverage will include research, education, and habitat opportunities, and will include significant public engagement.

Metrics for Public-Private Partnerships:

Federal Task Force

- The Partnership Action Plan to implement this Strategy will be submitted to the Task Force by the end of calendar year 2015.

Department of the Interior (DOI)

- Document fiscal year percent State Wildlife Action Plans (SWAP) funds used by states in addressing pollinator and monarch conservation planning and education, beginning in October 2015.

Environmental Protection Agency (EPA)

- Document the number of acres of pollinator-friendly cover at EPA-managed remediation sites.

Increasing and Improving Pollinator Habitat

Habitat quality and quantity are central to the health of pollinator populations and ecosystems, and to the well-being of our society that is dependent on these resources. The Presidential Memorandum specifically emphasizes the Federal role in expanding and improving pollinator habitat, both directly through the large variety of facilities and acreages of land managed by the Federal government, and indirectly through the leadership role that Federal agencies can play in interactions with states, localities, the private sector, and citizens. Of central importance to empowering long-term change is the modification of guidance documents that influence Federal actions, where small changes to existing practices can lead to long-term benefits. For instance, many agencies have landscaping and facilities-management contracts, which can often be modified to encourage native pollinator habitat, providing long-term benefits without impacting agency missions or requiring additional budget.

The Federal actions laid out below establish a long-term process to incorporate goals to achieve pollinator health into land management strategies. Agencies will implement this long-term objective through a combination of initial habitat actions by agencies, supplemented by research actions to:

- improve targeting of interventions;
- review the efficacy of land management actions; and,
- engage in adaptive management strategies.

Recognizing the scale of this endeavor and the many and varied opportunities available to all agencies, the Presidential Memorandum is structured to highlight certain agencies to serve as models for broader adoption, a recommendation that is reflected in this Strategy.

The Presidential Memorandum also includes a general provision that all Federal agencies implement pollinator habitat action on managed lands, in addition to where specified agencies are to pave the way toward expanded implementation. For ease of understanding, these habitat opportunities are categorized below under specific topics that cover:

A. Improving the quality and quantity of overall acreage for pollinators;

B. Expanding pollinator habitat on rights-of-way;

C. Strengthening Federal guidance documents to increase pollinator habitat;

D. Increasing habitat quantity and quality on Federally-managed facilities; and,

E. Creating a native seed strategy and reserve.

The activities listed below highlight these exemplary activities by Federal agencies, structured under general habitat management activities rather than by agency. Additional details are available in the individual agency pollinator plans prepared in response to the Presidential Memorandum (see Appendices).

A. Improving the Quality and Quantity of Overall Acreage for Pollinators

The Federal government is the largest land manager in the Nation and through its programs can also influence private-sector actions. Habitat actions on Federal lands focus on optimizing the use of existing personnel and budgetary resources, recognizing that in many situations improved pollinator habitat is a budget-neutral process. Habitat actions can even be financially beneficial due to the lower costs realized from reduced mowing and maintenance necessary for native vegetation. In particular instances, such as the need to stimulate immediate action to increase honey bee and monarch butterfly numbers, existing agency financial resources have been redirected and requests made in the President's FY16 Budget for additional resources. The efforts listed below are also intended to align with state, private sector, and philanthropic resources and activities. Combined, these efforts will help increase pollinator habitat across the United States and contribute substantially to crop pollination on farms where habitat needs are met.

- **Document and expand Conservation Reserve Program (CRP) benefits for pollinators:** The USDA Farm Service Agency (FSA) administers the Conservation Reserve Program, which implements long-term rental contracts with farmers to voluntarily remove environmentally-sensitive land from agricultural production, and to plant species that will improve environmental health and quality. The long-term goal of the program is to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat. CRP has over 24 million acres currently enrolled nationwide, including more than one million CRP State Acres for Wildlife Enhancement (SAFE) and other continuous CRP practices that provide enhanced pollinator habitat with diverse cover types. FSA will review its CRP practices to identify those practices that already are beneficial to wild pollinators and managed bees, and where additional pollinator plantings can be included.
- **Increase the dedicated CRP pollinator acres:** FSA has over 124,000 acres currently enrolled in a special CRP category for enhanced pollinator habitat practice (CP-42), and has allocated an additional 76,000 acres of land specifically for that practice. The practice includes planting native plant species and a variety of plants that flower at different times of the growing season to provide a diversity of pollen sources necessary for bee nutrition and health. In coordination with stakeholders, FSA is monitoring the effectiveness of CP-42 enrollments and other CRP practices to identify, document, and quantify the benefits to pollinators. Using this and other information from stakeholders, FSA will determine whether additional types of CRP pollinator acres and practices, including diverse plant species mixes or food plots more focused on honey bees or monarch butterflies, would be most helpful. Depending on stakeholder interest, FSA will work with NRCS to develop and implement such new practices or sub-practices.
- **Enhance existing CRP lands for pollinators:** FSA is working collaboratively with the NRCS to allow use of more-affordable pollinator-friendly seed mixes on CRP land. In 2014, FSA announced a new $8 million honey bee incentive to enhance CRP covers to make them more pollinator-friendly. CRP participants in five Midwestern States (MI, MN, ND, SD, WI), which are collectively home to more than 65% of summer honey bee hives, are being offered incentives to establish pollinator habitat on their CRP lands as a mid-contract management activity (see coordinated work in these five States with NRCS in the discussion below). This new option was

developed and made available in late FY14, although installation may take two seasons to implement since this work often involves significant land preparation. During FY15, outreach, including targeted materials to eligible CRP participants in the five-State area, will be completed in an effort to boost practice installation in FY15/16. The NRCS Plant Materials Program has pollinator forage demonstration field trials underway at many Plant Materials Centers across the United States, and is working with partners to increase the availability of important pollinator plant materials, including native milkweed species. Plant Materials Centers continue to study plant species to support pollinator habitat as well as to evaluate methods to improve the seeding, establishment, and management of pollinator plantings.

- **Provide emergency assistance for beekeepers (honey bee) to address losses:** The FSA plays a critical role in the delivery of programs that provide a safety net for beekeepers who experience losses due to natural disasters. The Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP) provides assistance for the loss of honeybee colonies, in excess of normal mortality, due to Colony Collapse Disorder or other natural causes. Approximately $28 million in payments were issued related to these claims in FY12 and FY13, combined. These funds are helping beekeepers rebuild their hives and remain solvent.

- **Update conservation practice standards for pollinators:** The Natural Resources Conservation Service has revised all applicable Conservation Practice Standards to include criteria for managed and wild bees and other pollinator habitat, and the Conservation Stewardship Program offers a pollinator habitat enhancement option. Several States, including Montana and South Dakota, target pollinators in Wetlands Reserve Program upland habitat restoration work. By the end of calendar year 2015, NRCS will have revised these standards and enhancements to include milkweed to improve monarch habitat where appropriate. In collaboration with the Xerces Society and academic partners, NRCS has revised and expanded plant lists and technical guidance documents for pollinator forage conservation. Some of these materials are posted online.[6] The NRCS Conservation Innovation Grants (CIG) program has supported several projects across the country designed to demonstrate the value of habitat for pollinators, as well as to expand and improve NRCS capacity to establish and monitor high-quality, permanent bee forage sites.

- **Target habitat improvements in priority honey bee summer forage areas:** Commencing in FY14, NRCS provided more than $3.2 million in technical and financial assistance to CRP participants in the five key Midwest States (MI, MN, ND, SD, and WI) to implement conservation practices that would provide diverse plant forage. This funding led to over 220 contracts on more than 26,000 acres. NRCS will make $4 million available in FY15 through EQIP for honey bee habitat in the same five Midwest States. Several NRCS state offices have also set aside additional funds for similar efforts, including California—where more than half of all managed honey bees in the United States pollinate almond groves and other agricultural lands—as well as Ohio and Florida.

- **Evaluate the efficacy of honey bee programs:** FSA and NRCS are partnering with the U.S. Geological Survey to study the impacts of joint honey bee efforts in the five Midwest States. In FY14 and FY15, NRCS provided a list of plant species recommendations for early/mid/late-season

6. http://plants.usda.gov/java/factSheet

blooms for diverse landscapes to provide optimal benefit for honey bees. The applied project is examining what plants honey bees rely on for pollen and nectar during different parts of the season, through a combination of pollen analysis and tracking the weight gain or loss of hives in different types of habitat (*e.g.*, comparing areas dominated by row crops vs. areas with significant CRP and pasture acreage). In FY15, the research is being expanded to study more sites across additional states to improve the ability to draw conclusions based on statistically significant relationships, along with a demonstration project focused on areas with orchards to look beyond the grassland/row crop habitats of the current study. USDA will continue to refine its seeding recommendations based on the findings of this work to ensure the provision of plants that are both cost-effective and of optimal benefit for honey bee health.

The Department of the Interior manages 500 million acres of lands, primarily located in the Western states, welcoming over 400 million visits to DOI managed lands each year for outdoor recreation and tourism, energy development, grazing, and timber harvesting. DOI land management bureaus are poised to play a significant role in establishing, restoring, and enhancing acres of pollinator habitat across the country.

- **Include pollinator friendly plants in land management programs:** The Bureau of Land Management is making major adjustments to land-management programs by incorporating native, pollinator-friendly vegetation as standard practice in common management practices on large parcels of land each year. These new policies will benefit pollinators through post-fire vegetation, fuels management, and green stripping (vegetation for fire breaks) activities on BLM lands. A major emphasis is the use of at least one pollinator-friendly native plant in all post-fire re-vegetation efforts and in all fuels and green stripping projects that include seeding. This action will be expanded through research and adaptive management to further expand the mix, scale, and amount of native seed use.
- **Invest in priority acreage to support conservation of the monarch butterfly:** The Fish and Wildlife Service is working with the governments of Mexico and Canada on a Tri-national Monarch Butterfly Conservation Plan. Domestic actions by the FWS include significant near-term investments to restore and enhance monarch butterfly habitat, which will be valuable to a suite of wild pollinators. In FY15, FWS has identified opportunities to restore or enhance more than 200,000 acres of monarch butterfly habitat through existing and planned projects on public and private lands, including support for 750 schoolyard habitats and pollinator gardens. Conservation will be delivered on FWS-owned lands, through partnerships on state-owned lands, and on private lands through the Partners for Fish and Wildlife and Coastal Programs. FWS will acquire more than 46,000 acres of land in the Midwest and Mountain Prairie Regions, which, although primarily aimed at protecting priority bird habitats, will have secondary benefits for monarchs and other pollinators. The FWS has also allocated an additional $2 million for priority projects in key geographic breeding and migration habitats focused on additional habitat restoration, native seed strategies, and education and outreach to target audiences. Many of the priority projects will focus on the I-35 corridor from Texas to Minnesota that provides spring and summer breeding habitats in the monarch's key migration corridor. FWS has also provided $1.2 million to the National Fish and Wildlife Foundation for the Monarch Conservation Fund

to be matched by private and public donors. The fund will provide the first dedicated source of funding for projects working to conserve monarchs.

B. Expanding Pollinator Habitat on Rights-of-Way

A right-of-way (RoW) is the "legal right, established by usage or grant, to pass along a specific route through grounds or property belonging to another."[7] Federal agencies have various relationships to RoW in the context of pollinator habitat, most often through easements on Federal lands for roads, rail, pipelines, powerlines, etc.; some needed by the government on private lands; and some RoWs completely within the purview of the private sector but influenced by the Federal government, whether through grant funding to states/localities, regulation, or potential Federal convening opportunities. RoWs are of particular interest for pollinator habitat because they constitute large land acreage on a cumulative basis, are generally maintained in sunny areas with low vegetation height (ideal pollinator habitat), and often extend for considerable distances, thereby potentially acting as corridors for species movement and adaptation to climate change. Exemplars in the Presidential Memorandum were identified to develop the technical basis and opportunities for improved pollinator habitat on RoWs, as a template for expanding implementation.

In achieving its mission to keep the traveling public safe, secure, and mobile, and to foster economic competitiveness and environmental stewardship, the U.S. Department of Transportation (USDOT) works closely with states, localities, and the private sector across a variety of transportation modes, including highways, railroads, aviation, pipelines, mass transportation, maritime routes, and the Saint Lawrence Seaway. The RoWs, facilities, and other properties necessitated by these transportation modes are in many instances not under direct USDOT control, but rather are managed by state and local entities or the private sector, consistent with USDOT promotion of best practices. USDOT is supporting the Administration's efforts to protect and enhance pollinator habitat as follows:

- **Prepare best management practices for pollinator habitat on highway rights-of-way:** The Federal Highway Administration (FHWA) has contracted to create a number of materials to support best management practices (BMP) for pollinator health in roadside vegetation management. The FHWA contractor has retained a non-profit organization specializing in invertebrate ecology to develop these materials. Based on the latest science in vegetation management and pollinator habitat, the BMP materials will provide transportation agencies with practical tools to promote increased pollinator habitat along roadways through improved plant material selection, mowing practices, and other roadside habitat maintenance practices. Deliverables for the BMP contract include: (1) a literature review of the latest scientific data on pollinator health and factors affecting pollinators to establish a foundation for BMP documents for transportation agencies (completed in January 2015 and currently under review for publication on the FHWA website); (2) a report on the state of practice for roadside vegetation management based on interviews with nine State departments of transportation (target completion: spring 2015); (3) a high-level report on BMPs for FHWA and State DOTs program, policy, and maintenance management staff (target completion: fall 2015); and (4) a detailed and practical BMP guidance document for State DOT field staff and contractors.

7. http://www.oxforddictionaries.com/us/definition/american_english/right-of-way

- **Distribution of e-book Vegetation Management: An Eco-regional Approach:** In 2013, FHWA published a limited number of hard copies of *Vegetation Management: An Eco-regional Approach*, which discusses regional vegetation management practices, native species recommendations, and other activities that support pollinator health within the context of specific eco-regions across the United States. The FHWA is developing the publication into an e-book for wider dissemination to State DOTs and other transportation stakeholders. The e-book will be publicly available on FHWA's website.
- **Participation in Plant Conservation Alliance:** In May 2014, FHWA signed a Memorandum of Understanding establishing the Federal Native Plant Conservation Committee of the Plant Conservation Alliance. The purpose of the Committee is to identify and recommend, as appropriate, priority conservation needs for native plants and their habitats, and to coordinate implementation of programs for addressing those needs.
- **Explore an Interstate-35 pollinator corridor effort with States and stakeholders:** The 1,500 mile I-35 corridor from the Texas border with Mexico northward to Minnesota is central to a number of Task Force efforts. From the southern end in springtime, monarch butterflies commence their annual northward migration through the central flyway traversed by the I-35 corridor, dispersing to the upper Midwest, and returning via this route in fall. In conjunction with the FWS, USDOT will work to convene a workshop of I-35 State transportation officials, partners, and organizations to reinvigorate efforts for prairie and pollinator habitat restoration along this corridor. The I-35 corridor would serve as a focal point for linking resources and coordinating actions. The objectives of this initiative are broad and encompass multiple land management approaches. The workshop objectives include sharing State DOT best practices and coordinating efforts toward a national monarch corridor. A priority objective is the identification of viable ways to supplement Federal, state, and local landscaping actions through the engagement of private sector and philanthropic resources. The workshop would also explore how USDOT transportation modes and stakeholders can support pollinator habitat enhancement, and will encourage state and local partners to identify opportunities for improving pollinator and monarch habitat along transportation rights-of-way, in local parks and public spaces, and other promising locations along the I-35 corridor.
- **Evaluate opportunities to encourage pollinator habitat on privately-owned and -operated facilities:** USDOT has worked with the Rails-To-Trails Conservancy and the American Society of Landscape Architects (ASLA) regarding information on pollinator-friendly landscaping design for transportation stakeholders in order to identify opportunities to promote pollinator health on unused rights-of-way. A number of the Department's modal websites will provide hyperlinks connecting visitors to additional resources promoting pollinator health and the planting of pollinator-friendly vegetation. Resources will focus on the role of the transportation sector in promoting pollinator health. Website links will navigate visitors to additional pollinator-related resources.

Metrics for Improving the Quality and Quantity of *Overall Acreage* for Pollinators:

Farm Services Agency (FSA)

- Complete a review of CRP practices in 2015 and revise Conservation Practice Standards as appropriate.
- Document total CRP acreage annually, including:
  - Document targeted pollinator acreage annually, and meet goal of 200,000 acres by 2018.
  - Document mid-contract enhanced CRP acreage and complete initial assessment of honey bee conservation pilot by 2016.
  - Document cumulative CRP acreage in targeted pollinator practices and other pollinator friendly practices (CP-42, mid-contract, SAFE, etc.) annually.
- Document ELAP expenditures for honey bee colony losses.

Natural Resources Conservation Service (NRCS)

- Document NRCS financial support to implement conservation practices to provide diverse plant forage in support of pollinators.
- Document the number of acres contracted under the EQIP to establish honey bee habitat.
- Document funding of annual innovation grant projects that demonstrate the value of habitat for pollinators, and to expand and improve NRCS capacity to establish and monitor high-quality, permanent, bee forage sites.

Department of the Interior (DOI)

- Document, by the end of FY15, the percent of BLM-managed lands employing post-fire vegetation, fuels management, and green stripping (vegetation for fire breaks) activities to rehabilitate agency lands that include native pollinator-friendly seeds; document actual pollinator enhanced acreage.
- Document the number of monarch butterfly habitat acres restored by the FWS; the number of acres acquired by FWS that provide monarch habitat; and the number of schoolyard habitats/gardens created on FWS owned lands or through FWS technical assistance.

Department of Transportation (USDOT)

- Complete pollinator BMP materials by February 2016 with a target date to make materials publicly available by spring 2016.
- Make vegetation management e-book publicly available by spring 2015.
- Conduct fall 2015 workshop to promote I-35 corridor conservation.
- USDOT will develop links on the USDOT website that will provide visitors access to additional resources promoting the role of the transportation sector in support of pollinator and monarch health by Pollinator Week (June 16-23, 2015).

- **Working with the Edison Electric Institute (EEI) and Electric Utilities on Transmission Line RoW Habitat:** The North American Electric Reliability Corporation (NERC) has delegated responsibility to develop and enforce standards to ensure the reliability of the bulk power system, including the Reliability Standard that addresses vegetation management covering tree trimming on high voltage transmission RoWs (FAC-003-2; residential power line maintenance is under the purview of state and local authorities). The transmission line requirements place strict responsibilities on operators that trees and other vegetation growing in or adjacent to a power line RoW be trimmed to prevent power outages caused by tree contact with a transmission line. These RoWs can be cost-effectively managed to offer prime pollinator habitat of low-growing grasses, forbs, and shrubs, using techniques such as Integrated Vegetation Management (IVM). A number of major public and private utilities have become exemplars of IVM practices to encourage pollinators. Federal agencies (EPA, USDA, DOI, DOE) are revising the existing Memorandum of Understanding with EEI to further these beneficial pollinator practices.

C. Strengthening Federal Guidance Documents to Increase Pollinator Habitat

Modifications to Federal guidance documents can engender long-term, often cost-neutral, changes whose benefits accrue over years and become part of routine business practice. Guidance documents and websites also offer the means by which staff can identify additional technical and personnel resources to inform actions. The Presidential Memorandum recognized that key changes to internal Federal guidances were needed, calling out three such guidance documents to address Federal habitat management actions, supplemented by a native seed reserve to provide regionally-sourced pollinator seed mixes. These Federal guidance documents increase in scale from building construction and maintenance (General Services Administration), to designed landscapes (Council on Environmental Quality), to broad land management activities (BLM, USFS, and others):

- **Federal Building Standards and Custodial Specifications:** The U.S. General Services Administration (GSA) provides the spaces, services, and goods required to operate the Federal government. GSA's Public Buildings Service (PBS) provides workplaces by constructing, managing, and preserving government buildings and by leasing and managing commercial real estate. PBS owns or leases over 8,700 assets, comprising approximately 377 million square feet of workspace for over 1 million Federal employees. GSA's Facilities Standards for the Public Buildings Service, the P-100,[8] provides design performance guidance to meet agency design goals. The P-100 laid the groundwork for policies to protect pollinator habitat through existing standards that promote the preservation of greenfields, protection of existing site trees and other vegetation, and use of non-invasive, native, or adapted vegetation. GSA has now added pollinator-specific guidance to the P-100, including practices to promote both nesting and foraging for regionally-appropriate pollinators on landscaped sites. GSA guidance also informs the management of agency facilities and landscapes nationwide, through a national custodial specification providing model contract language. GSA has added new pollinator-friendly guidance references to relevant custodial specification sections, such as Grounds Maintenance,

8. http://www.gsa.gov/portal/content/104821

that cross reference the new P-100 pollinator requirements and the CEQ Designed Landscape Addendum (below). GSA also establishes long-term, government-wide contracts with commercial firms to provide access to commercial products and services at volume discount pricing, *i.e.*, the GSA Schedule. GSA is establishing a schedule item for firms to provide landscape construction services to replace monoculture landscapes along rights-of-ways and other large designed acreages with native grasslands (*i.e.*, prairies and meadows).

- **Guidance for Supporting Pollinators on Designed Federal Landscapes:** The Federal government controls or owns more than 41 million acres of land and 429,000 building assets, comprising 3.34 billion square feet of space in the United States. Consequently, landscaping practices by Federal agencies can have significant impacts on the environment. Decisions regarding the development and maintenance of Federal landscaped property provide an opportunity to promote the sustainable use of these facilities, actions empowered by Executive Order 13514, now EO 13693, and implemented by CEQ in the October 31, 2011 *Guidance for Federal Agencies on Sustainable Practices for Designed Landscapes*. Pursuant to the Presidential Memorandum, CEQ issued an addendum to the sustainable landscape guidance entitled *Supporting the Health of Honey Bees and other Pollinators*.[9] This addendum guides Federal agencies in incorporating pollinator-friendly practices in new construction, building renovations, landscaping improvements, and in facility-leasing agreements at Federal facilities and on Federal lands.
- **Best Management Practices for Pollinators on Federal Lands:** Beyond buildings and designed landscapes, the Federal government manages, on behalf of the Nation, large expanses of lands, from forests, prairies, and parklands to grassed spillways and rights-of-way for roads, pipelines, and power lines. As required by the President, DOI and USDA have prepared a BMPs document that consolidates general information about practices and procedures for Federal agencies (*e.g.,* USDA, DOI, DOE, USACE) to use when considering pollinator needs in project development and management of Federal lands that are managed for native diversity and multiple uses. The BMPs (USDA/DOI 2015) are organized under three subject areas: (1) BMPs to improve pollinator habitat, (2) BMPs to protect pollinators when taking management actions, and (3) BMPs to protect and sustain specific pollinator species, notably honey bees and monarch butterflies. Selected references are provided, and readers are encouraged to access these as well as additional sources of information on the BMPs that they are interested in implementing.

9. http://www.whitehouse.gov/administration/eop/ceq/sustainability/landscaping-guidance

Metrics for Strengthening Federal Guidance Documents to Increase Pollinator Habitat:

General Services Administration (GSA)

- Draft P-100 standards were issued through a directive on September 18, 2014, and finalized following Public Buildings Service clearance in 2015. http://www.gsa.gov/portal/content/104821
- The number and percentage of new GSA buildings implementing each tier of the P-100 pollinator standard will be tracked.
- GSA schedule for firms to provide landscape construction services to replace mono-culture landscapes along rights-of-ways and other large designed acreages with native grasslands and clovers will be established.

Council on Environmental Quality (CEQ)

- The addendum to the sustainable landscape guidance, *Supporting the Health of Honey Bees and other Pollinators*, was issued on October, 2014.

Department of the Interior (DOI) and Department of Agriculture (USDA)

- Guidance document on BMPs to protect and sustain pollinators on Federal land completed and issued in May 2015 (USDA/DOI 2015).

D. Increasing Habitat Quantity and Quality on Federally-Managed Facilities

All Task Force agencies are addressing opportunities to review their facilities-management practices to increase pollinator habitat. These applications primarily implement the GSA building and CEQ designed landscape guidance documents, modified in certain instances by agency mission needs.

- **White House South Lawn Pollinator Garden and Beehive:** With the help of the National Park Service and White House staff, First Lady Michelle Obama led local school children and FoodCorps volunteers in planting the first White House Pollinator Garden on April 2, 2014. The garden is located next to the White House Kitchen Garden and beehive, illustrating the importance of pollinators to good nutrition. The Kitchen Garden, beehive, and pollinator garden have generated national interest through their prime location in one of the most photographed spots in the Nation, accompanied by continued engagement from the First Family.
- **Smithsonian Institution (SI) gardens:** The Smithsonian Institution oversees and manages approximately 7,000 acres of land within the United States. SI's iconic facilities in Washington, DC, host over 28 million annual visitors who join in the vision of preserving our heritage, discovering new knowledge, and sharing resources with the world. SI's strategic direction is to reduce turf and mulch areas in gardens and replace with appropriate native plantings to serve as educational and inspirational foci. SI has developed pollinator foraging habitat using native plants at the Smithsonian Garden's Butterfly Garden and Urban Bird Habitat at the National Museum of Natural History, and landscapes around the National Museum of the American Indian and the Cultural Research Center in Suitland, MD. The National Zoo has completed a rain garden,

butterfly garden, and native plant "Zoo in Your Backyard" to enthuse visitors with the benefits of native plantings in their own gardens. Outside Washington, the Smithsonian Environmental Research Center in Edgewater, MD has 2,200 acres of land that includes native species that are pollinator-friendly, and a newly constructed 4.65 acre wetland featuring pollinator-friendly aquatic plants. The Smithsonian Conservation Biology Institute in Front Royal, VA manages 200 acres of old fields, 400 acres of pasture, and 200 acres of hay fields, all of which are managed with pollinator-friendly plants. An additional 30 acres will be converted to native grassland using a mix of flowering native plants.

- **U.S. Department of Agriculture (USDA) People's Garden Initiative and Headquarters beehive:** On February 12, 2009, to honor Abraham Lincoln's 200th birthday, Agriculture Secretary Tom Vilsack declared the grounds surrounding USDA Headquarters in Washington, DC, to be the first People's Garden. This commenced a challenge to employees to create gardens at all USDA facilities, which has since expanded to a collaborative effort of over 700 local and national organizations working together to establish community and school gardens across the country. People's Gardens vary in size and type, but they must be collaborative community endeavors and should incorporate sustainable practices, including planting of native plants that sustain beneficial insects. All produce grown at a People's Garden on USDA-owned or -leased property is donated to help those in need.
- **The Department of the Interior (DOI) to develop guidance for pollinator-friendly facilities and lands:** DOI is drafting a landscaping policy to promote pollinators on all DOI-owned facilities and offices, covering organizations such as BLM, NPS, FWS, USGS, Bureau of Reclamation (BOR), Bureau of Indian Affairs (BIA), Office of Surface Mining Reclamation and Enforcement (OSMRE), and Headquarters Offices. DOI also manages a large and diverse range of lands for a variety of purposes, and many ongoing land management practices provide nesting substrate and food sources for a range of pollinator species. BLM is revising its Renewable Resource Treatments and Improvements manual to include the use of pollinator-attractive native plants in vegetation treatments and the use of best management practices, and is working to update stipulations for apiary permits on BLM lands.
- **The U.S. Environmental Protection Agency (EPA) to establish a comprehensive pollinator baseline at its facilities:** The EPA will complete pollinator site assessments at its owned laboratories nationwide, including an inventory of flora types, a listing of observed pollinator species, and a review of landscaping practices, resulting in the establishment of a comprehensive pollinator baseline. Additionally, the EPA will review existing landscaping contracts at EPA-owned laboratories to look for opportunities to institute more pollinator-friendly landscaping activities. The pollinator baseline will be used in tandem with master plans to drive future landscaping decisions that will further protect and expand pollinator communities at EPA-owned laboratories. These activities will culminate in establishing targets of opportunity in FY16 and the out-years at EPA-owned laboratories that protect and expand pollinator communities in accordance with the Presidential Memorandum. The EPA will also be collaborating with the General Services Administration in FY16 and out-years to seek opportunities to further protect and expand pollinator communities at GSA-owned/-leased and EPA-occupied properties nationwide.

- **Department of Defense (DOD) pollinator directives to facilities:** DOD manages a vast and varied array of property types that can contribute to pollinator health, covering 25 million acres of land and tens of thousands of buildings. To implement the Presidential Memorandum, DOD has built upon its existing land stewardship activities through orders, directives, guidance, and funding to increase pollinator habitat. DOD collaborates with the Pollinator Partnership to provide technical and programmatic guidance on pollinators and pollinator habitat implemented on DOD lands. Immediately following the Presidential Memorandum, DOD issued a memorandum to Military Services (September 2014) to reinforce the *DOD Policy to Use Pollinator-Friendly Management Prescriptions* and use native landscaping, when possible; avoid using herbicides and pesticides in sensitive habitats; and coordinate with other agencies and non-governmental organizations on habitat and pollinator issues. DOD will issue additional instructions that the Military Services track implementation of this policy, in addition to adding pollinator-friendly management language to DOD Instruction 4715.03, *Natural Resources Conservation Program*, which is DOD's primary policy document for natural resource management. DOD will issue additional technical and programmatic guidance to update the *Unified Facilities Criteria [UFC] for Landscape Architecture* (UFC 3-201-02), issued in February 2009, to include pollinator-friendly management practices in contractor design and construction projects. Pollinator protection and management will also be included in DOD's Natural Resources Strategic Plan, which provides broad goals and objectives for implementing natural resources conservation and management on DOD installations. From 2009–2014, DOD funded approximately 150 pollinator-related National Public Lands Day projects, and will continue to support these small projects (<$6,500) that provide tools and resources to volunteers.
- **The U.S. Army Corps of Engineers (USACE) to adopt land BMPs for pollinators on Corps recreational and fee owned projects:** The USACE is the steward of the lands and waters at 12 million acres of Corps water resources projects. The natural resources mission of the Corps is to manage and conserve these natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations. The primary focus of the Corps pollinator plan will be on fee-titled lands, although the plan shall be applied, as appropriate, to all Corps commands having responsibility for civil works functions. The Corps will:
  - **Issue policy guidance on pollinator health and management:** The Corps will identify existing policy and guidance and modify these for pollinator health, including access for commercial hives. These actions will include issuing a policy memorandum or similar guidance from Corps HQ Natural Resource Management Branch to Divisions, Districts, and Projects encouraging use of the Pollinator Land BMPs as part of normal operating principles during land management, and revising guidance of natural resource regulations when these are updated.
  - **Incorporate pollinator work within its budget guidance:** The Corps will provide guidance in the USACE Budget Engineer Circular and Environmental Stewardship Budget Tools to encourage pollinator habitat improvements. Other projects to benefit bees and wild pollinators will be identified and considered during the budget process, under the stewardship business line.

- **Identify USACE pollinator partnerships:** The Corps Stewardship Advisory Team will engage the Corps Partnership Advisory Committee to evaluate existing partnership tools, such as challenge partnerships and handshake programs, to determine how such tools could be appropriately used to improve pollinator health.
- **Increase awareness and education on pollinator actions:** The Corps will incorporate information on pollinator health in exhibits and displays for visitor education as appropriate, and will increase the pollinator habitat message into ranger contact materials when updates occur. The Corps will consider construction of pollinator gardens near visitor centers and other high-pedestrian traffic areas to promote healthy pollinator habitat.
- **Implement conservation and best management practices for pollinator health:** The Corps will implement the above listed Federal facility guidance documents and Land BMPs for pollinator habitat improvement at its facilities. A particular initial focus will be on the I-35 corridor, from Texas to Minnesota, as this area provides important spring and summer habitat for the monarch butterfly. The Corps has over 1 million acres at 45 projects within 50 miles of I-35. Coordination with partners, such as Texas Parks and Wildlife and FWS Southwest Region, has begun.
- **Develop metrics to track pollinator habitat improvement:** The Corps has developed specific indicators to track work activities and accomplishments that target pollinator protections for the FY 17 budget development process. At a minimum, the acreage of habitat improvement, invasive species treatment, plantings, site protection, and other related activities will be identified, consolidated, and incorporated into the Corps' annual program recommendations. Additional metrics focusing specifically on monarch improvements and pesticide management will be evaluated for future development.

- **Department of Transportation (USDOT) "Pollinator Flagship Facilities":** The USDOT Office of Sustainability and Safety Management (OSSM) is working closely with USDOT Operating Administrations that own or directly manage properties to identify and implement practices to support and improve the health of wild pollinators and honey bees, and has recommended that evaluation factors based on the addendum to the sustainable landscape guidance, *Supporting the Health of Honey Bees and other Pollinators*, be used in awarding future landscape contract procurements. USDOT has conducted an inventory of landscape management practices documenting widespread use of native plants and minimal insecticide use on USDOT-managed properties. USDOT has identified three properties (Federal Highway Administration's Turner-Fairbank Highway Research Center, the PST/Volpe's National Transportation Systems Center, and the Federal Aviation Administration (FAA) Mike Monroney Aeronautical Center) to serve as "Pollinator Flagship Facilities." Managers of these properties, overseeing a total of approximately 50 acres, have agreed to develop plans for enhanced plantings of pollinator gardens, including native plants, and to reduce mowing to allow increased flowering of existing grassland plants and reduced use of insecticides. In addition, a pollinator garden, certified by the North American Butterfly Association, has been installed at the USDOT headquarters building in Washington, DC in partnership with the building owner.

- **Department of Energy (DOE) pollinator lands at the National Laboratories:** DOE owns thousands of acres of land associated with its national laboratories, field offices, user facilities, and National Nuclear Security Administration (NNSA) operations. For example, the Argonne National Laboratory campus includes 1,500 acres, Brookhaven National Laboratory 5,320 acres, Fermi National Laboratory 6,800 acres, and the Oak Ridge complex 4,421 acres. Consistent with each site's mission, DOE will implement the GSA and CEQ guidance documents concerning the management of Federal buildings and landscapes to include pollinator-friendly regional seed mixes. The first step in the development of performance metrics will be to identify those sites appropriate for the adoption of BMPs and to provide estimates of the area of potential habitat being added. The effort will be undertaken over the next 12 to 18 months. Once the candidate sites have been identified, adoption of BMPs will proceed on a site-by-site basis.
- **Housing and Urban Development (HUD) to issue pollinator notice to grantees:** Most HUD projects are designed and implemented by grantees, and there are currently no landscaping requirements for HUD funding. To advance the President's goals, HUD will develop a notice to encourage grantees to incorporate new pollinator habitats into existing and future projects, and to adjust their landscaping procedures to reduce mowing, plant native species, and review pesticide usage. The notice will document the economic arguments for pollinator support, including reduced landscaping costs and other compliance suggestions, as incentives to implementation. This will be supplemented by educational materials and the incorporation of pollinator awareness into future training materials and vehicles. Grantee projects that incorporate pollinator habitat into project design will be highlighted on the HUD website.
- **Department of State (DOS) to expand pollinator habitat:** The Department of State is committed to conservation and sustainable use of natural resources, representing the United States globally in numerous international environmental fora. The Department of State fosters pollinator-friendly work through the Greening Diplomacy Initiative (GDI), a commitment to lead by example and improve the sustainability of the Department's facilities and operations. The Department is not a large landowner inside the United States, with only seven domestic properties totaling fewer than 71 hectares (175 acres). Domestically, the Department of State will continue its partnership with GSA to explore further pollinator-friendly landscaping enhancements at appropriate facilities. The first of the Department's efforts will include, consistent with the master plan of the facility and subject to the availability of resources, cultivation and planting of a pollinator meadow at the National Foreign Affairs Training Center (NFATC), the main campus of the Foreign Service Institute (FSI), in Arlington, VA, during the spring of 2015. Consistent with the master plan and subject to the availability of resources, a rooftop pollinator garden and general pollinator signage will be installed at NFATC in 2016. There are currently more than 20 U.S. Diplomatic Posts and two domestic facilities featuring pollinator-friendly and/or native plant-focused landscaping, supported by Integrated Pest Management practices at all Department-owned facilities. Four U.S. missions (Bern, Switzerland; Ciudad Juarez, Mexico; Geneva, Switzerland; and Santo Domingo, Dominican Republic) are registered as Certified Wildlife Habitat by the National Wildlife Federation, and the Department will seek, subject to availability of resources, further Mission certifications.

- **Demonstrating special emphasis projects at GSA facilities:** GSA has implemented a variety of sustainable landscaping demonstration projects that support pollinators. These include the Sustainable Sites (SITES)-certified Pete V. Domenici U.S. Courthouse (Albuquerque, NM) landscape renovation, which provides a refuge for urban wildlife with 79% native plants, and the Federal Building at 50 United Nations Plaza (San Francisco, CA), with a green roof designed to create a safe haven and fly-over for bird, butterfly, and insect populations. GSA will review current capital project programs to identify additional special emphasis pollinator-friendly projects to demonstrate best practices and educate the public.

Metrics for Increasing Habitat Quantity and Quality on Federally-Managed Facilities:

White House

- White House Pollinator Garden was planted in 2014 and is being successfully maintained.

Smithsonian Institution (SI)

- Document annual increase of acreage on SI property in the United States covered by best management practices for pollinator health.

US Department of Agriculture (USDA)

- Document number and percent of USDA facilities with People's Gardens.

Department of the Interior (DOI)

- Complete landscaping policy to promote pollinators on all DOI-owned facilities and offices; issue by end of summer 2015.
- All DOI-owned facilities landscaping contracts will include pollinator-beneficial requirements within 5 years.
- Initiate revision of BLM Manual 1740 "Renewable Resource Treatments and Improvements" by second quarter of FY16.
- Update BLM Lands Program stipulations for apiary permits by FY16.
- Develop and issue instructional memoranda directing BLM State Directors to identify a coordinator for pollinator project development, coordination, and reporting in FY15.

Environmental Protection Agency (EPA)

- EPA will complete the baseline pollinator habitat assessment by end 2015, as a prelude to implementing additional pollinator habitat and gardens.

Department of Defense (DOD)

- Review and update appropriate policy issuances by December 2015.
- Signed MOU in February 2015 with Pollinator Partnership to provide technical and programmatic guidance on pollinator habitat implemented on DOD lands.

Metrics for Increasing Habitat Quantity and Quality on Federally-Managed Facilities (Continued):

U.S. Army Corps of Engineers (USACE)

- Issued field guidance and information in June 2014 to field projects on the National Pollinator Strategy, the Corps Pollinator Health Plan, and best management practices.
- Incorporate pollinator management protocols into the draft ER 1130-2-540 by June 2015 for inclusion into final publication. Final publication date to be determined.
- Include specific pollinator guidance and identification of pollinator work in the development of environmental stewardship aspects of the FY17 Budget. Completed.
- Include internal pollinator web-based resources on the Corps Natural Resources Management Gateway to expand education on creating and protecting pollinator habitat.
- Establish FY17 Budget identifiers for pollinator habitat in the ENS Business Line Budget Tool (Environmental-Stewardship Budget Evaluation System (E-S BEST)). Completed.
- Initial identification of partners for pollinator habitat through the Corps Partnership Advisory Committee by May 2015.
- Document, by December 15, 2015, the number of pollinator gardens with displays to promote healthy pollinator habitat for visitor education at Corps facilities.

Department of Transportation (USDOT)

- By December 2015, USDOT will adopt the CEQ guidance into its policies, and flagship facilities will have finalized plans to enhance pollinator-friendly habitat practices.
- Acres of pollinator habitat will be documented at USDOT Flagship Facilities.

Department of Energy (DOE)

- Document annual increases in acreage covered by best practices, with a goal of adopting BMPs at the identified sites over a 10-year timeframe.

Housing and Urban Development (HUD)

- Issue notice to incorporate new pollinator habitats into existing and future projects, and to adjust landscaping procedures to reduce mowing, plant native species, and review pesticide usage, by June 2015.

Department of State (DOS)

- Document and post online the number of Department-owned facilities with pollinator-friendly or native plant-focused landscaping.
- Document the number of Department-owned facilities recognized as Certified Wildlife Habitats by the National Wildlife Federation.

General Services Administration (GSA)

- Identification of additional special emphasis projects involving landscaping to support pollinators will be accomplished by the end of the third quarter of FY15.

E. Native Seed Strategy and Reserve

DOI and USDA are leading Federal efforts to establish a reserve of native seed mixes, including pollinator-friendly plants, for use on post-fire rehabilitation projects and other restoration activities. This action builds on the existing Native Plant Materials Development Program, created by Congress in 2001, that directs the Bureau of Land Management and the U.S. Forest Service to help ensure a stable and economical supply of genetically-appropriate native plant materials. This program is aided by the USDA NRCS Plant Materials Program, which has a nationwide network of Plant Materials Centers (PMC) that evaluate pollinator-friendly plants and develop information for establishing and managing pollinator plants. The PMCs are working with the Xerces Society and native seed industry partners to increase the availability of important pollinator plant material.

Creating a Reserve of Native Seed Mixes

The Presidential Memorandum builds on these activities by identifying existing public and private resources, with the objective of providing regionally-appropriate native seed mix capacity sufficient to meet Federal land restoration and rehabilitation needs, and to potentially contribute to other state and local activities requiring native pollinator seed mixes. To these ends, the Department of the Interior led the multi-agency preparation of a draft *National Seed Strategy for Rehabilitation and Restoration* (2015) and *An Integrated Rangeland Fire Management Strategy* (2015). The National Seed Strategy is directed toward providing land management agencies with the tools needed to facilitate ecological restoration across the United States, including acquisition, storage, and distribution of native seed and other plant materials. The Rangeland Fire Management Strategy includes a Seed Strategy section identifying a systematic pathway forward, including responsible organizations and delivery dates.

Plant Material Development and Production

- **Identification of pollinator-attractive plants:** A team of Federal agency staff, including representatives of the BLM, USFS, ARS, and NRCS, will lead regional native plant and pollinator partnership groups to identify plant species that are both attractive and nutritionally beneficial to pollinators. These include plant species that are currently in production and those species that might need to be increased through established plant materials programs or through collection of seed and grow-out contracts with private industry. The team will also consider if the best way to increase these species is with seed, seedlings, or container stock.
- **Identifying existing pollinator plant production:** Federal agencies will assess work that is ongoing for pollinator-friendly species at plant material centers, nurseries, seed extractories, germplasm storage centers, and other facilities, and outline current and needed capacity to maintain a steady supply of pollinator-attractive native plant species for all agencies to use in restoration, rehabilitation, and other projects requiring pollinator-friendly plant species.
- **Expanding private-sector species availability:** Federal agencies with responsibilities for developing plant materials will assess the collaborative work that is underway with the private seed industry to increase the availability of a variety of pollinator-friendly native species for

use in wildlands and natural areas, as well as the collaborative work needed to maintain a seed supply of pollinator-friendly species for restoration and other uses.

Seed Collection, Storage, and Use

- **Identifying additional plant collection and grow-out needs:** Federal agencies will work with USDA-NRCS Plant Materials Centers, local native plant societies, the seed industry and other partners, agencies, and organizations to create or update Technical Notes that outline pollinator-friendly species by ecoregion. By 2017, all ecoregions in the United States will have pollinator-friendly plant lists. Federal agencies responsible for restoration activities will work with agencies that have plant materials development responsibility to determine which pollinator-friendly native plant species are the highest priority for developing seed transfer and distribution actions. Agencies will identify pollinator-attractive plant species appropriate for permitted wild land collection, areas where seed may be collected, and the amounts of seed that can be sustainably collected in average years on lands they manage, and will begin collecting seed according to species priority.
- **Confirming and augmenting seed storage capacity:** Agencies with plant material storage facilities will assess the current status of agency supplies and storage of pollinator-friendly native plant materials, as well as how these native seeds are distributed to regions and projects. Agencies with responsibilities in the Eastern, Southern, and Midwest regions will work with the private seed industry to determine the storage reserve of pollinator-friendly native plant materials for use in those areas. Agencies with land management responsibility in the West will assess the need for distributed storage, as well as the quality of mobile units for that storage investment.
- **Empowering agency use of pollinator-friendly seedstock:** Agencies will identify funding sources for implementing the seed reserve actions in the Presidential Memorandum and Strategy. Agencies with land-management responsibility will review policies regarding restoration, rehabilitation, and reclamation for opportunities to use pollinator-friendly native plant species. All Federal agencies may utilize the Restoration Services Contract that contains bid items for seed as nursery stock production, outplanting, and other restoration-related activities.

Metrics for Implementing a Federal Native Seed Strategy and Reserve:

Plant Material Development and Production:

- BLM, USFS, NRCS, and ARS will identify plant species that are most beneficial to pollinators to consider in regional development programs by August 2015.
- Agencies that use native plants in restoration activities will determine which pollinator-attractive native plant species are the highest priority for developing seed transfer and distribution zones (September 2015).
- Federal agencies with responsibilities for plant materials development will identify species beneficial to pollinators that are currently being produced by each of the Federal agencies, and will establish the availability of each species by December 2015.
- By October 2015, Federal agencies will identify those pollinator-friendly plant species currently in grow-out programs that are expected to be harvested and made commercially available in the summer/fall of 2016.
- Agencies will also identify by October 2015 those species they expect to begin evaluating and producing, along with estimated targets for when adequate seed of such species will be available to transfer to commercial producers.

Seed Collection, Storage, and Use:

- DOI and the U.S. Forest Service will complete an outline of existing seed collection programs and determine priorities for additional seed collection efforts by October 2015.
- Areas where seed may be collected in sustainable amounts will be identified by December 2015, and collection of seed will be initiated in spring of 2016.
- Seed storage capacity and needs will be identified by April 2016.
- Funding sources for implementing seed reserve actions will be identified by September 2015.
- Agencies with land management responsibilities will complete review of policies regarding restoration, rehabilitation, and reclamation using pollinator-attractive plants by December 2016.
- Agencies with land management responsibilities will evaluate their need to utilize Restoration Services Contracts by December 2015.

Protecting Pollinators From Exposure to Pesticides

Pesticides play a critical role in agricultural production and the health of our society. Pesticides include, among their many and varied uses, the herbicides necessary for no-till agriculture and invasive species plant control, and the insecticides necessary to combat species that can decimate crops or transmit human disease. It is the misuse and overuse of these pesticides that leads to adverse ecological and human health consequences. Federal agencies, particularly EPA, are entrusted with balancing the risks and benefits of pesticide use. This challenge is made more complex for pollinator species, as most pollinators—honey bees, wild bees, moths, beetles, flies—are insects and, as such, are susceptible to the designed toxicities of applied insecticides. Furthermore, plants that are deemed "weeds" and excised from farms and front gardens may have served as nurseries or food sources for honey bees and wild pollinators, including monarch butterflies. These complex considerations mandate care in all pesticide application, and underpin the need for Integrated Vegetation and Integrated Pest Management (IVM, IPM) as sustainable approaches to "managing pests by combining biological, chemical, cultural, mechanical and physical tools in a way that minimizes economic, health, and environmental risks."[10]

Mitigating the effects of pesticides on bees is a priority for the Federal government, as both bee pollination and insect control are essential to the success of agriculture. EPA is working to reduce bees' exposure to pesticides without losing the ability to control pests in agriculture. Certain pesticides are also important pest management tools for beekeepers. Through actions outlined in this Strategy, the Federal government seeks to create physical and temporal space between the use of pesticides and those areas and times when pollinators are present. The Presidential Memorandum specifically tasked EPA to assess the effect of pesticides, including neonicotinoid insecticides, on the health of bees and other pollinators, and to take appropriate actions to protect pollinators. The following summarizes the specific actions that EPA will take over the next 3–5 years to contribute to this effort (see Appendix A for details).

Implement New Harmonized Guidance for Assessing Pesticide Risks to Pollinators

In June 2014, EPA, working in collaboration with Health Canada and the California Department of Pesticide Regulation, released a harmonized guidance for assessing the risks posed by pesticides to bees (USEPA 2014). The guidance describes a tiered process beginning with a conservative screen (Tier 1) that uses laboratory-based acute and chronic toxicity studies of individual adult and larval honey bees. These laboratory results are compared to exposure estimates to ascertain if there are potential risks to the bees. Depending on the results, more refined estimates of exposure can be used to determine if risk estimates exceed levels of concern, at which time higher-tier studies may be required. The higher-tiered studies consist of semi-field tunnel or feeding studies with whole colonies undergoing relatively controlled exposures (Tier 2), to full-field studies of whole colonies with free-foraging bees and pesticide application conditions as close to actual use conditions as possible (Tier 3). Throughout this process,

10. 7 U.S. Code § 136r–1 - Integrated Pest Management

risk assessors consider whether mitigation measures can be applied sufficient to reduce exposures to levels that are not of concern.

- **Issue new toxicity study guidelines to more fully protect honey bees:** EPA is reviewing new exposure and effect study protocols to implement the harmonized pollinator risk assessment process (above). In past years, EPA has routinely required acute contact toxicity testing with individual adult bees (USEPA 2012a), toxicity of residues on foliage with individual adult bees (USEPA 2012b), and field pollinator studies with whole colonies (USEPA 2012c) as part of the suite of data used to characterize the potential exposure and effects of pesticides on non-target organisms. Recognizing heightened concerns for honey bees, in 2011 EPA issued interim study guidance for bee health (USEPA 2011). EPA has developed finalized guidance (USEPA 2014) on the conduct of exposure and effect studies used to characterize the potential risk of pesticides to bees, and on how these data will be required by the EPA. These advances reflect the understanding that the honey bee colony represents a complex superorganism consisting of male and female bees at different stages of development, each with different functions within the colony and with differing routes of exposure to pesticides. Additional exposure study protocols include semi- and full-field studies to examine uptake and decline of residues in plants (particularly in nectar and pollen). Additional effects study protocols include some with existing guidelines developed by the Organisation for Economic Cooperation and Development (OECD), including acute adult oral toxicity (OECD 1998a), acute larval toxicity (OECD 1998b), and semi-field testing with whole colonies (OECD 2007). New guidelines for chronic toxicity testing with adult bees and with bee larvae are under development by EPA, in conjunction with the OECD. OECD guidance documents are also under development for acute toxicity testing with bumble bees, and work is underway internationally to develop additional tests with solitary bees and other insect pollinators.
- **Re-evaluate the neonicotinoid family of pesticides:** Honey bees exhibit complex social behaviors to identify pollen and nectar sources, return to the hive potentially miles away, communicate locational information to the colony, and participate in brood rearing and care. Concern for honey bee health has centered on published reports of chronic neurotoxicity to bees posed by the widespread use of the neonicotinoid family of pesticides. Neonicotinoid pesticides are absorbed by plants and distributed systemically to various plant tissues, with some of the pesticide residue being transferred to pollen and nectar, and then to honey, over potentially prolonged periods. Bees exhibit a wide range of sensitivities to the different neonicotinoid compounds. Under the harmonized risk assessment process, EPA has been working to ensure that there are sufficient data to characterize exposure to, and effects from, these compounds, both at the level of the individual bee and at the whole-colony level. In addition to laboratory-based studies on honey bee adults and larvae, EPA is reviewing multiple field-based studies at the whole-colony level. Consistent with the President's requirements, EPA has further expedited its broad re-evaluation of the nitroguanidine-substituted neonicotinoid subclass (*i.e.*, imidacloprid, clothianidin, dinotefuran, thiamethoxam) under the 2015 - 2017 schedule laid out in Appendix A. As part of EPA's ongoing effort to protect pollinators, the EPA has sent letters to registrants of neonicotinoid pesticides with outdoor uses, informing them that EPA will likely not be in a position to approve most applications for new uses of these chemicals until new bee

data have been submitted and pollinator risk assessments are complete. The letters reiterate that the EPA has required new bee safety studies for its ongoing registration review process for the neonicotinoid pesticides, and that the EPA must complete its new pollinator risk assessments (which are based in part on the new data) before it will likely be able to make regulatory decisions on imidacloprid, clothianidin, thiamethoxam, and dinotefuran that would expand the current uses of these pesticides. This is an interim position, as the outstanding data identified in the re-evaluation program are scheduled to be submitted to EPA over the upcoming few years. Once the data and assessments for honey bees are available, EPA will be able to make stronger and more scientifically-reliable regulatory decisions on their uses.

- **Analysis of neonicotinoid seed treatments:** EPA conducted a draft economic analysis of the benefits of imidacloprid, clothianidin, and thiamethoxam seed treatments for insect control in United States soybean production. The assessment examines the use of neonicotinoid seed treatments in terms of the extent of use and the pests targeted. The assessment also estimates the biological and economic impacts of not allowing the use to continue on soybeans. The draft analysis was released for public comment between October 2014 and January 2015. EPA is reviewing the comments and analyzing additional information relevant to the assessment. EPA typically assesses the benefits of a chemical on a crop by crop basis. EPA's assessment of neonicotinoids' benefits on soybeans is the first completed for the neonicotinoids because some scientific publications claim that treating soybean seeds has little value. EPA will perform additional benefits assessments as part of the registration review process in which EPA will consider both risks and benefits for each of the neonicotinoids.
- **Assess other pesticides for their potential impacts on pollinators:** Many pesticides can affect honey bees and other pollinators, especially when misapplied contrary to label requirements. Building upon the risk framework and study protocol enhancements described above, EPA will incorporate this new science into its regulatory decision-making process for all applications for new active ingredients, as well as periodic reviews of active ingredients under the registration review program, for which EPA will open public comment periods on proposed mitigation decisions. The 2015 release schedule for risk assessments for public comment is detailed in Appendix A.
- **Restrict the use of pesticides that are acutely toxic to bees:** EPA has improved label language and restrictions for pesticides that are acutely toxic to bees. In 2013, EPA notified registrants of four neonicotinoid insecticides and several other insecticides of EPA's decision to reduce potential acute exposure to these pesticides. EPA is considering additional restrictions on a broader range of pesticide products to further reduce the likelihood of acute exposure and mortality to bees from the foliar (leaf) application of acutely toxic compounds. Contracted pollination services pose a particular risk for bee mortality, where a large number of honey bee colonies are intentionally placed at an agricultural site. Application of a toxic pesticide in this scenario is near certain to result in adverse effects to pollinators. Although such outcomes are counterproductive for both beekeeper (loss of honey bee stock) and grower (diminished pollination services), consistent ways to avoid such outcomes have proven challenging. EPA believes that strong regulatory measures should be in place on the contracted service scenario to mitigate

these potential problems. EPA will propose to prohibit the foliar application of acutely toxic products during bloom for sites with bees on-site under contract, unless the application is made in accordance with a government-declared public health response. These measures would include advisory hazard statements (e.g., pollinator protection boxes) as well as enforceable language in the directions for use sections of labels. For colonies not contracted to provide pollination services, EPA believes that state/tribal-managed pollinator protection plans could provide effective means of mitigating potential acute exposures to foliar applied pesticides at bloom, as these plans serve as a means of accommodating both grower and beekeeper needs through cooperative agreements at the local level.

- **Work with states and tribes to issue pollinator protection plans:** Localized and more-customized mitigation measures may best be achieved through states and tribes developing pollinator protection plans. These plans help address the need for improved communication between growers/applicators and beekeepers with respect to pesticide applications. Plans articulate means through which growers, applicators, and beekeepers can quickly and effectively communicate pesticide applications in close proximity to managed colonies. To establish the framework for these plans, EPA is working with state and tribal agencies through existing partnerships. Several states, including California, Colorado, Florida, Mississippi, and North Dakota, have already developed plans. These plans, developed in cooperation with a broad spectrum of agricultural interests including beekeepers, provide the foundation upon which EPA has been collaborating with its state and tribal regulatory partners to identify the necessary elements that the Agency will use to evaluate managed pollinator protection plans developed by states/tribes.
- **Reduce exposures during the planting of pesticide-treated seed:** Modern agricultural practices use precision pneumatic equipment to plant seeds. Bee kills have been reported from the drift of contaminated dust during the planting of pesticide-coated seed using these practices, predominantly from abrasion of the seed coating. Stakeholder engagement on this problem has led to their issuing guidance on seed treatment stewardship (ASTA 2013), along with efforts to develop lubricant agents that can reduce dust generation during the planting of treated seed. EPA has been working with the American Seed Trade Association, equipment manufacturers, and pesticide registrants to explore additional mitigation measures, including broader adoption of best management practices, to further reduce the emissions of these pesticide residues during the planting process. These efforts have included the development of alternative lubricants used in pneumatic planters to reduce the extent of dust generated through the abrasion of treated seed during planting (fugitive dust), as well as the development of more effective seed coatings to enhance the extent to which pesticides adhere to seeds.
- **Evaluate and mitigate pesticide impacts on monarch butterflies:** EPA has determined that the protection of milkweed is consistent with its responsibilities under FIFRA and that it will take actions, as part of its regulatory decisions and voluntary programs, to establish practices and requirements to protect critical milkweed resources. EPA will issue for public comment a draft framework outlining an approach it intends to take to protect monarch butterflies. Specifically, EPA has identified the types of information that may be important to identify actions that bal-

ance monarch protection and weed management. The framework will support and complement the actions and objectives of the Canada/Mexico/United States Trilateral Committee for Wildlife and Ecosystem Conservation and Management. EPA is continuing to work with multiple Federal agencies (*e.g.*, USFS, FWS, USGS) to understand the habitat needs of the monarch butterfly relative to its migratory patterns. The efforts to conserve milkweed species from effects of herbicides may encompass a number of pesticidal compounds. Therefore, in contrast to a typical quantitative single-chemical analysis approach, EPA will rely upon both qualitative and quantitative analyses to weigh risks and benefits and identify actions to conserve the milkweed plant where it is important to monarch butterflies. EPA anticipates that a number of actions could be taken to protect monarch butterflies, ranging from changes to pesticide label instructions, to spray drift buffers from critical milkweed resources, to best management practices. These management practices may mirror and be complementary to other conservation efforts aimed at creating, conserving, or restoring wildlife habitat. Collaboration between partners in different sectors will be important for success to adopt management practices in a coordinated manner, not only at the field level but at the landscape and area-wide levels, as well.

- **Issue guidance for bee incident report inspections:** Bee mortality incidents are reported through tips or complaints to EPA (http://www2.epa.gov/pollinator-protection/report-bee-kills), state, or tribal pesticide programs. EPA considers this incident report data as a means to identify patterns of bee kills associated with the use of specific pesticides or active ingredients, and to thereby inform pesticide regulatory decisions. EPA has developed guidance to identify unique considerations that Federal, state, and tribal inspectors should take into account when they are conducting inspections as a result of the death of honey bees and other social bees (http://www2.epa.gov/sites/production/files/2013-09/documents/bee-inspection-guide.pdf). EPA has required states to report bee kill incidents as part of the Cooperative Grant Guidance through which states receive funding to support incident inspections.
- **Expedite review of new Varroa mite control products:** Many researchers believe that honey bee health has been significantly compromised by hive pests. In particular, the Varroa mite (*Varroa destructor*) is seen as a significant parasite and challenge to maintaining healthy honey bee colonies. In 2014, EPA approved all of the requested emergency exemption applications it received from state agencies for a product that is designed to help manage the mite and to increase the available options for combating resistance development in mite populations. EPA recently registered a Varroa control product, oxalic acid, which is also registered in Canada. EPA is working with the regulated community, other Federal agencies, and the private sector to identify products that may be effective in-hive pest control measures. EPA is committed to expediting the evaluation for any new pesticide products that may be used to help manage colony pests. An increased variety of chemical control measures must, however, be integrated with other non-chemical control methods to ensure that these collective efforts reduce the extent to which Varroa resistance continues to develop.

Environmental Protection Agency Metrics for Protecting Pollinators from Exposure to Pesticides:

- Tiered guidance for assessing the risk posed by pesticides to bees was completed in 2014 (in collaboration with Canada Pest Management Regulatory Agency (PMRA) and California Department of Pesticide Regulation (DPR)).
- Document the number and percentage of registration and registration review chemicals required to submit testing data at each Tier of the above guidance.
- Complete all honey bee exposure and effect protocols and implement the harmonized pollinator risk assessment process by the end of 2016.
- Achieve conformance with the 2015-2017 re-evaluation schedule of the nitroguanidine-substituted neonicotinoid subclass to satisfy the standard for registration under FIFRA.
- Finalize benefits assessments for imidacloprid and thiamethoxam soybean seed treatments by fall 2015.
- Provide annual updates on the number of pesticides for which the new framework for assessing risks to bees has been incorporated. Document the number of labels that contain pollinator-specific mitigation measures.
- Issue for public comment a proposed prohibition on foliar application during contracted pollinator services by December 2015.
- Issue for public comment a draft framework outlining an approach to protect monarch butterflies that balances monarch protection and weed management by summer 2015.
- Document the number of state/tribal pollinator protection plans addressing the need for improved communication between growers/applicators and beekeepers with respect to pesticide applications under development and the number of plans implemented.
- Bee mortality incident guidance was issued May 9, 2013; EPA will report annually on the number of reported mortality incidents, cumulative hive mortality, and results of inspections.
- Document the time required to evaluate proposed new Varroa control products.
- Document the number of Varroacide products available for use.

Conclusions

The Task Force has developed this Strategy to promote the health of honey bees, monarch butterflies, and other pollinators. The overarching goals are to reduce overwintering honey bee colony mortality by 50% within ten years, increase the Eastern wintering population of the monarch butterfly to 225 million butterflies in five years, and restore/enhance 7 million acres of land for pollinators over the next 5 years through Federal actions and public/private partnerships. This Strategy, consisting of a Pollinator Research Action Plan, plans for outreach and education, habitat enhancement and increased acreage, and public-private partnerships, has been described in the preceding sections. The heads of the Executive Departments and Agencies have responded to the elements identified in the Presidential Memorandum on developing such a Strategy. As each component of the Strategy is implemented, the Task Force will modify and adjust the Strategy to reflect the evolving science on which it is founded, to ensure that Federal resources are used effectively to improve pollinator habitat and health. As directed by the President, the representatives from each of the departments and agencies responsible for various elements of the plan will regularly report to the Task Force. Given the importance of a collective response to pollinator declines and the number of sectors of agriculture, industry, and the environment potentially affected by these declines, each of the departments and agencies represented on the Task Force will continue to engage the public and private sectors to develop partnerships that can more effectively leverage the resources needed to effect change at both the national and global level.

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