



# POLLINATORS ON THE VERGE: ROADSIDE POLLINATOR HABITATS

Sustainable Cities Network

Green Infrastructure Workgroup

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# OVERVIEW

- ▶ National Pollinator Initiatives
- ▶ Endangered Species Act and Pollinators
- ▶ Roadsides and Pollinator Habitat
- ▶ Best Management Practices



# NATIONAL INITIATIVES

- ▶ **June 2014 - Presidential Memorandum** on “Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators”

<http://www.fs.fed.us/wildflowers/pollinators/documents/PresMemoJune2014/PresidentialMemo-PromoteHealthPollinators.pdf>

- ▶ Appendices specify actions for federal agencies to take

- ▶ **May 2015 - National Strategy** to Promote the Health of Honey Bees and Other Pollinators

<http://www.fs.fed.us/wildflowers/pollinators/BMPs/documents/PollinatorHealthStrategy2015.pdf>

# FEDERAL AGENCY EFFORTS

- ▶ May 2015 - “Pollinator-Friendly Best Management Practices for Federal Lands” released by Departments of Agriculture and Interior  
<http://www.fs.fed.us/wildflowers/pollinators/documents/PresMemoJune2014/PresidentialMemo-PromoteHealthPollinators.pdf>
- ▶ Forest Service webpage:  
<http://www.fs.fed.us/wildflowers/pollinators/BMPs/index.shtml>
- ▶ BLM webpage and podcast:  
[http://www.blm.gov/wo/st/en/prog/more/fish\\_\\_wildlife\\_and/pollinator\\_week.print.html](http://www.blm.gov/wo/st/en/prog/more/fish__wildlife_and/pollinator_week.print.html)
- ▶ NPS webpage:  
<https://www.nps.gov/subjects/pollinators/index.htm>
- ▶ USGS Bee Inventory and Monitoring Lab  
<https://www.flickr.com/photos/usgsbim/>



# ENDANGERED SPECIES ACT AND POLLINATORS

- ▶ Currently listed in Arizona
  - ▶ Lesser long-nosed bat
- ▶ Under review for possible listing
  - ▶ Monarch butterfly
  - ▶ Western bumble bee





# US DOT AND FHWA EFFORTS

- ▶ **2014 Presidential Initiative Directed US DOT/FHWA to**
  - Evaluate current guidance and informational resources
  - Identify opportunities to increase pollinator habitat along roadways
  - Work with State Departments of Transportation and transportation associations to promote pollinator-friendly practices and corridors
- ▶ **Fixing America's Surface Transportation Act, Section 1415**
  - Administrative Provisions to Encourage Pollinator Habitat and Forage on Transportation Rights-of-Way
- ▶ **FHWA Vegetation Management and Pollinators webpage**  
[http://www.environment.fhwa.dot.gov/ecosystems/vegmgmt\\_pollinators.asp](http://www.environment.fhwa.dot.gov/ecosystems/vegmgmt_pollinators.asp)
  - Literature review on pollinators and roadsides, January 2015
  - Pollinators and Roadsides: Best Management Practices for Managers and Decision Makers, January 2016

## Environmental Review Toolkit

Home

Planning and  
Environment

NEPA and Project  
Development

Accelerating  
Project Delivery

Historic  
Preservation

Section 4(f)

Water, Wetlands,  
and Wildlife

### Water, Wetlands, and Wildlife

Program Overview

Agricultural Lands

Environmental Laws and  
Regulations

Wetlands and Aquatic  
Ecosystems

Ecosystem and Vegetation  
Management

- Habitat Management
- Native Plants
- Invasive and Noxious Weeds
- Pollinators
- Links
- Training

Wildlife and Habitat

Awards

ESA Webtool



Submit Feedback

### Pollinators and Roadsides: Best Management Practices for Managers and Decision Makers

[Printer-friendly PDF Version](#) (5.9 MB)



January 2016

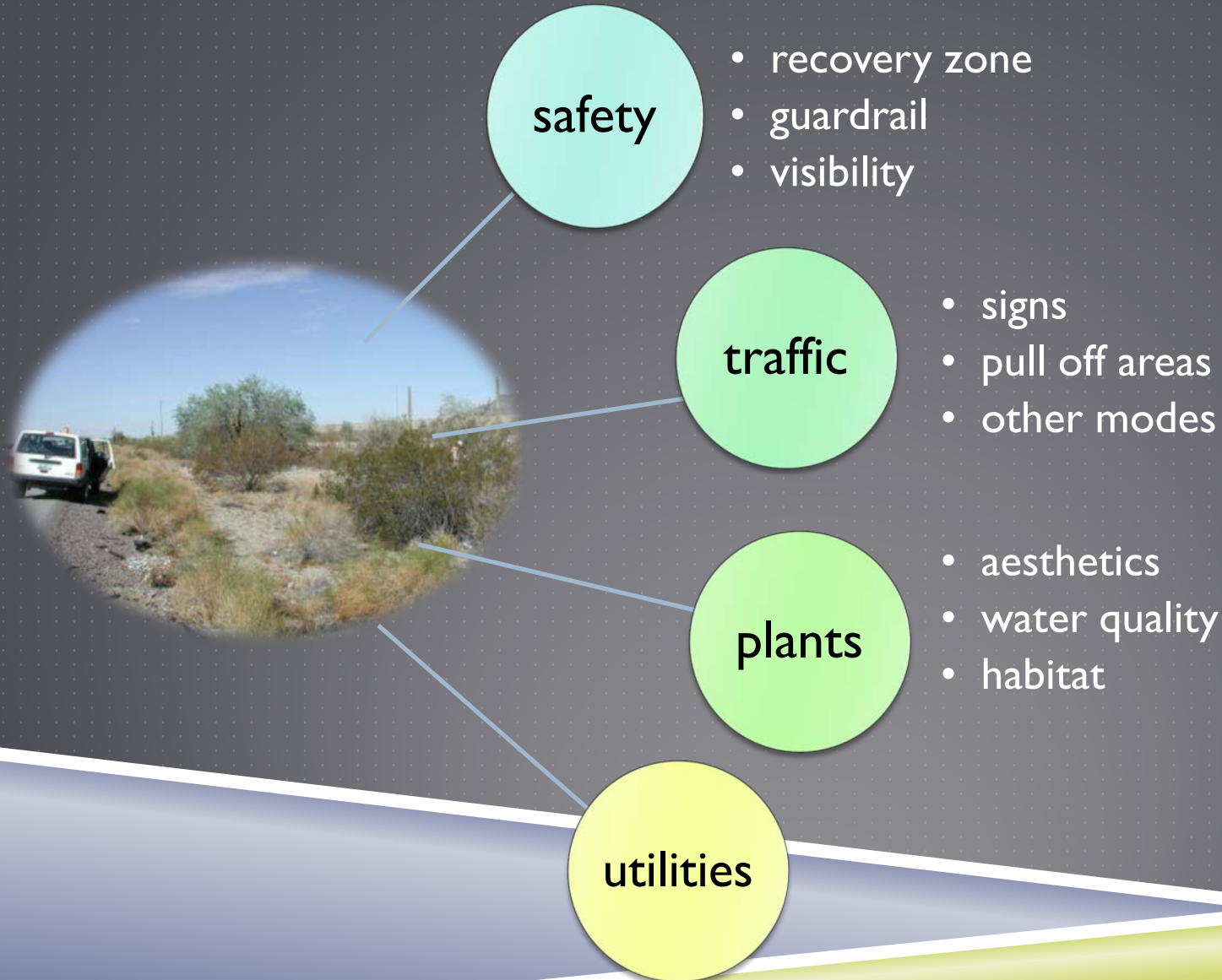


U.S. Department of Transportation  
Federal Highway Administration

[https://www.environment.fhwa.dot.gov/ecosystems/PollinatorsRoadsides/BMPs\\_pollinators\\_roadsides.asp](https://www.environment.fhwa.dot.gov/ecosystems/PollinatorsRoadsides/BMPs_pollinators_roadsides.asp)



# ROADSIDE FUNCTIONS AND USES



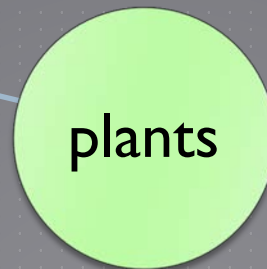
# ROADSIDE FUNCTIONS AND USES



- recovery zone
- guardrail
- visibility



- signs
- pull off areas
- other modes



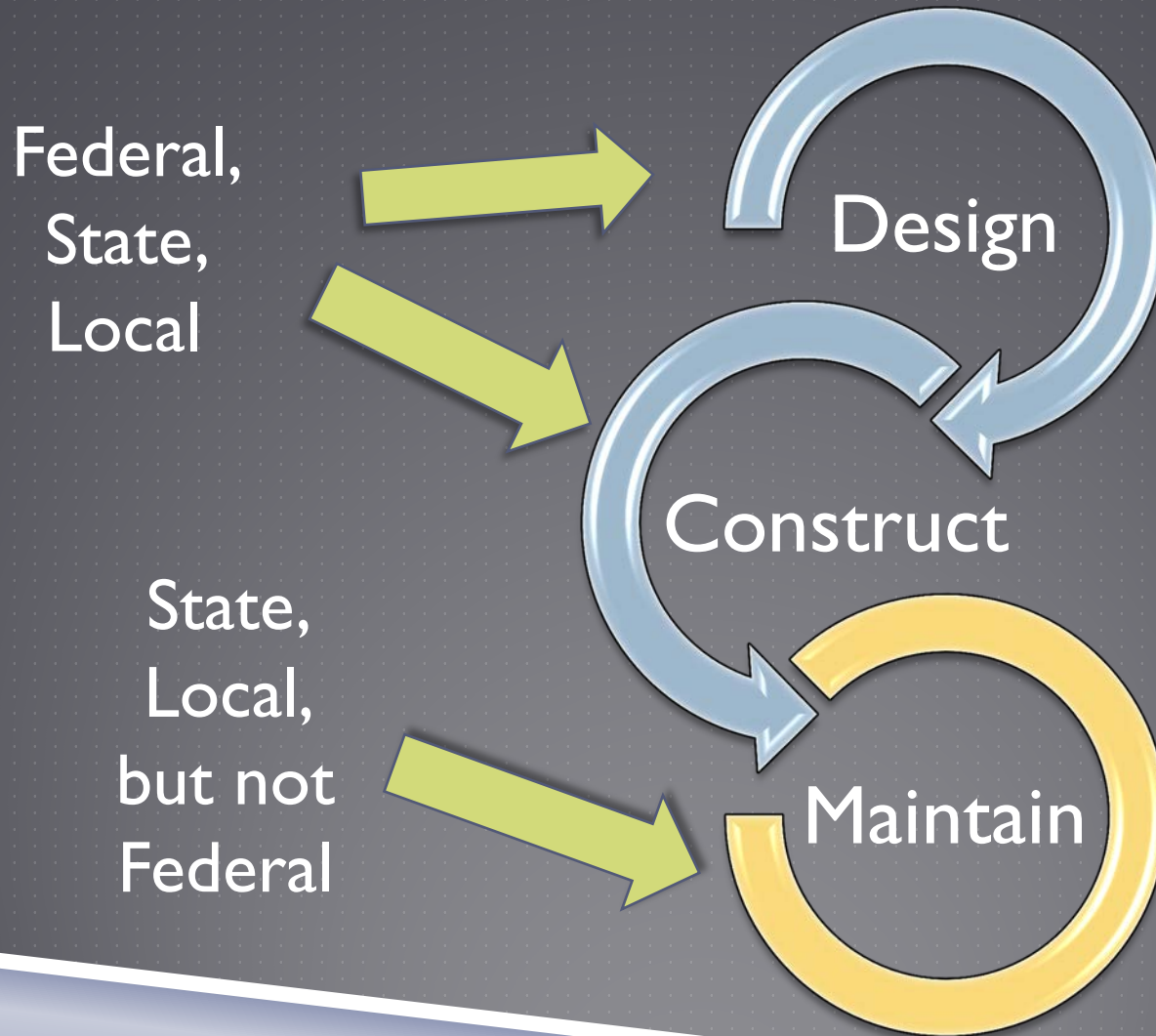
- aesthetics
- water quality
- habitat



utilities



# FUNDING SOURCES FOR ROADS



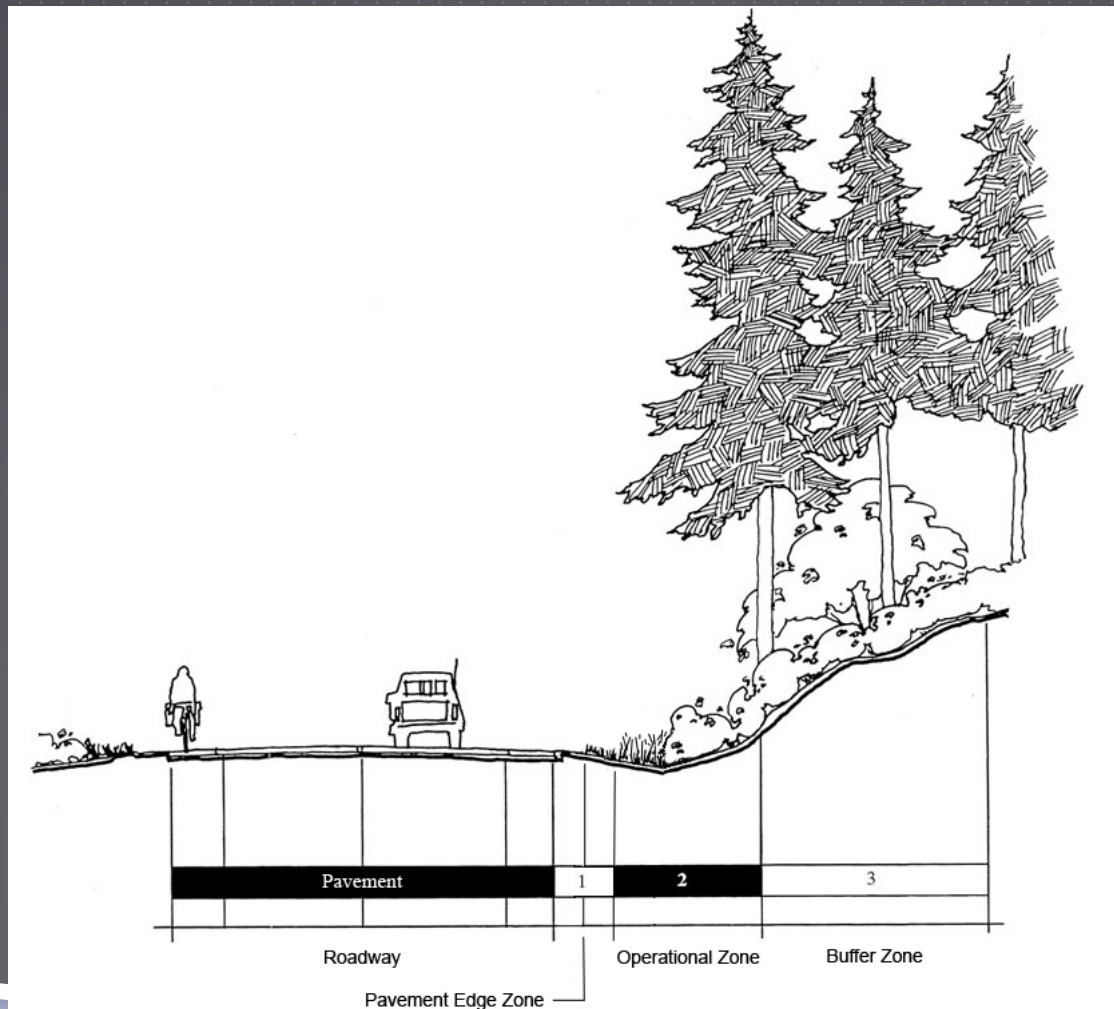


# ROADSIDES AS POLLINATOR HABITAT

- ▶ Over 17 million acres in the US
- ▶ Provide habitat including
  - ▶ Food
    - ▶ Pollen and nectar plants
    - ▶ Host plants for larvae
  - ▶ Shelter
    - ▶ Nests in vegetation and bare ground
    - ▶ Overwintering sites
  - ▶ Connectivity



# ROADSIDE VEGETATION MANAGEMENT ZONES



## **Pavement Edge Zone**

*Low Growing or Routinely Mowed Vegetation and/or Vegetation-Free Strip*  
Maintained using mechanical and/or chemical methods for sight distance, stormwater drainage and filtration, noxious weed control, pavement preservation and roadside hardware maintenance.

## **Operational Zone**

*No Vegetation with Stem Diameter Greater than 4"*  
Maintained using IVM techniques for sign visibility, sight distance, errant vehicle recovery and weed control.

## **Buffer Zone**

*Native or Naturally Occurring Vegetation*  
Where adequate right of way exists, maintained using IVM techniques to encourage desirable, self-sustaining plant communities.

WSDOT  
Roadside Manual  
(2015)

# CURRENT PRACTICES HELP POLLINATORS

## Design and Construction

- ▶ Use native species for reseeding
- ▶ Policies that promote a diverse mix of native plants
- ▶ Detailed contract specifications for seeding and establishment

## Maintenance

- ▶ Pollinator-friendly herbicide practices
- ▶ Mowing practices that protect pollinators and maintain blooms throughout season





# INTEGRATED VEGETATION MANAGEMENT

In a nutshell:

- ▶ Encourage Useful Native Plants
- ▶ Reduce Mowing
- ▶ Reduce Pesticides

WSDOT Roadside Manual (2015):

The establishment of low-maintenance beneficial vegetation and the suppression of unwanted vegetation through the integration of biological, cultural, manual, mechanical, and educational methods.

Chemical controls are used only when needed.

IVM uses plant growth characteristics, principles of plant succession, and knowledge of natural and human-related factors affecting environmental change to achieve management goals, while minimizing impacts on the environment.



# BEST MANAGEMENT PRACTICES

From Xerces Society/ICF Report for FHWA:

- ▶ Manage existing habitat remnants to maintain wildflower diversity
- ▶ Minimize mowing beyond the immediate shoulder
- ▶ Use herbicides in a strategic, targeted manner
- ▶ Increase use of diverse native species on roadsides, especially plants needed by pollinators
- ▶ Communicate with the public and adjacent landowners about reasons for changes in maintenance practices



# MANAGING FOR SPECIES DIVERSITY

- ▶ Remove invasive species that tend to form monocultures
  - ▶ Careful timing of mowing to avoid seed development
  - ▶ Prescribed burns in some areas
  - ▶ Spot spraying plants rather than broadcast applications of herbicide





# MANAGING FOR SPECIES DIVERSITY

## Mowing practices

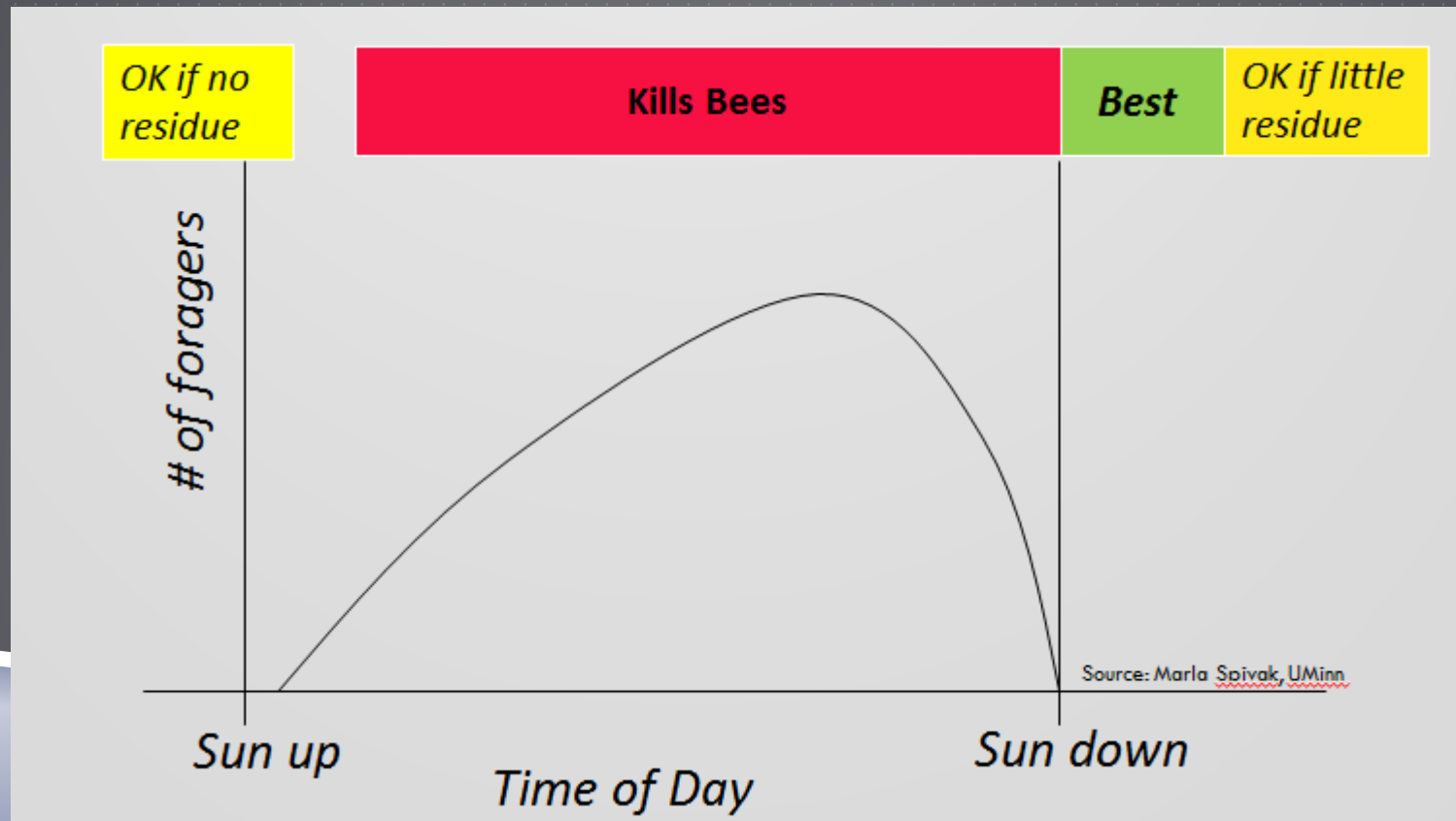
- ▶ Ideally, mow no more than twice a growing season – up to once every 3 or 4 years
  - ▶ Cost savings
  - ▶ Maintains plant root mass
  - ▶ Wildflowers may return from the existing seedbank
- ▶ Delay mowing until wildflowers have gone to seed and butterflies have emerged
  - ▶ Maintain pollinator food sources throughout season
  - ▶ Protects ground and grassland nesting birds
  - ▶ Builds seed bank of desirable species
- ▶ Focus on maintaining a low growth safety zone at the road shoulder; reduce or eliminate mowing beyond the minimum width needed

# POLLINATORS AND PESTICIDE USE

- ▶ Use pesticides strategically
  - ▶ Train applicators to recognize wanted and unwanted plants
  - ▶ Time the applications based on vulnerability of weeds
  - ▶ Spot spray rather than broadcast herbicide
  - ▶ Avoid spraying flowering plants
  - ▶ Spray when pollinators are less active (close to dawn)
  - ▶ Use selective herbicides
  - ▶ Avoid herbicides with Extended Residual Toxicity to insects – understand the Bee Box on the label

# HONEY BEE DAILY ACTIVITY LEVELS

Best Time for Pesticide Application around Honey Bees:  
Dusk to Dawn





# THE NEW EPA BEE ADVISORY BOX

On EPA's new and strengthened pesticide label to protect 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 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/tribe, go to: [www.aapco.org](http://www.aapco.org). Pesticide incidents can also be reported to the National Pesticide Information Center at: [www.npic.orst.edu](http://www.npic.orst.edu) or directly to EPA at: [beekill@epa.gov](mailto:beekill@epa.gov)

Alerts users to separate restrictions on the label. These prohibit certain pesticide use when bees are present.



The new bee icon helps signal the pesticide's potential hazard to bees.

Makes clear that pesticide products can kill bees and pollinators.

Bees are often present and foraging when plants and trees flower. EPA's new label makes it clear that pesticides cannot be applied until all petals have fallen.

Warns users that direct contact and ingestion could harm pollinators. EPA is working with beekeepers, growers, pesticide companies, and others to advance pesticide management practices.

Highlights the importance of avoiding drift. Sometimes, wind can cause pesticides to drift to new areas and can cause bee kills.

The science says that there are many causes for a decline in pollinator health, including pesticide exposure. EPA's new label will help protect pollinators.



Read EPA's new and strengthened label requirements: <http://go.usa.gov/jHH4>

# BENEFITS OF NATIVE PLANTS

- ▶ Help to stabilize soil, reduce runoff
- ▶ Adapted to local conditions, require fewer inputs
- ▶ Aesthetics – drivers prefer wildflowers over grasses; can increase tourism
- ▶ Reduced maintenance labor costs over time once established





# ADDING POLLINATOR HABITAT TO IRVM

- ▶ Add species to seed mix based on:
  - ▶ Host plants and food sources
  - ▶ Overlapping blooming times
- ▶ Identify sites that require the least input to become good pollinator resources
  - ▶ Prioritize sites with lower levels of weeds
  - ▶ Consider adjacent land use
- ▶ Use showy plantings, signage and other community involvement to build support





# QUESTIONS?

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