

Talking Points

This collection of talking points may be useful in communications with the public or with DOT staff members. These talking points can help explain to decision-makers in your department the importance of pollinators and the types of actions DOTs can take to protect pollinators.

Pollinators Are Important to Human Health and Well-being

More than 85 percent of flowering plants require an animal, usually an insect, to move pollen between flowers for reproduction. Because they provide this important service, pollinators are vital to our natural areas as well as human health and well-being. Insect pollinators are important for many crops. It has been estimated that about one in three bites of food that humans eat every day can be traced back to pollinators.

As habitat within rural landscapes decreased, agricultural crops became more dependent on pollination from managed honey bees. The bees, which are native to Europe, can be brought in during bloom and moved between crops throughout the growing season. Studies show that wild native bees contribute substantially to crop pollination as well. Furthermore, pollination improves when native bees are present compared to periods when only honey bees are present.

Many Species of Pollinators Are Declining and in Need of Conservation Actions

Many species of insects are declining around the world, including a number of pollinators. Pollinators in the United States are no exception. For example, long-term studies in both Ohio and California have documented declines in butterfly abundance and richness. A recent study of butterflies in the western United States looked at long-term data as well as community science data and found a long-term decline in butterfly abundance amounting to 1.6 percent per year over the last 40 years. This decline includes previously abundant and widespread species like the monarch butterfly. Native bees are also showing declines, with 27 percent of mason bees and 50 percent of leafcutter bees at risk of extinction. Similarly, 28 percent of bumble bee species in the United States and Canada are imperiled, with several on the brink of extinction.

Roadsides Can Provide Valuable Habitat for Pollinators

State DOTs manage substantial amounts of land and associated natural resources across North America, including more than 10 million acres in the United States. This acreage holds the potential to create a network of habitats that will be able to support pollinators across urban and rural landscapes. Pollinator diversity can be high in roadsides, areas where communities include a significant portion of the species found in the region. Furthermore, roadsides can be home to rare species as well as common species. Roadsides provide pollinators with food as well as breeding or nesting opportunities and can increase habitat connectivity.



Photo: Sarah Nizzi / Xerces Society

Creating and Managing Roadside Habitat for Pollinators Will Not Compromise Safety

Sight lines can be maintained on roadsides with native plants through careful plant selection. Landscape designers can use the palatability of plants to large mammals to inform plant selections. In addition, reduced mowing (of the entire roadside) does not appear to influence the number of deer/vehicle collisions. Deer may prefer roadsides that are mowed more frequently because mowing can increase the palatability of some plants; deer often prefer new growth to older vegetation. Regular mowing of the strip of vegetation adjacent to the pavement (i.e., recovery area, also known as the clear zone), while letting the rest of the roadside grow to a reasonable height, can help maintain driver visibility and prevent deer/vehicle collisions.

Creating and Managing Pollinator Habitat along Roadsides Has Many Benefits for DOTs

Creating resilient pollinator habitat along roadsides has many benefits beyond pollinator conservation. Pollinator habitat provides benefits such as erosion control and reductions in runoff. This reduces flooding, which is critical in areas where increased flooding is projected.

Pollinator habitat can also help mitigate effects of extreme weather, such as drought. Creating diverse plantings along roadsides also increases soil health. Studies of grassland soils show that increasing plant diversity increases soil health. Thus, diverse plantings created for pollinator conservation also help mitigate extreme weather by increasing soil health within those habitats.

Restoration and protection of natural habitat can be a means of mitigating the effects of extreme weather. Some studies suggest that increasing natural resilience alone could provide one-third of the mitigation required to prevent weather patterns from becoming more extreme.

Some Actions that Promote Pollinator Habitat May Save Money Compared to Current Practices

Some practices, such as reduced mowing, can provide cost savings. Other practices that may have higher upfront costs, such as using native plants in revegetation projects, may have lower long-term costs through the savings provided by increased weed suppression and increased resilience to extreme weather.

Native Plants Are Better for Pollinators

Native plants are central to healthy, functional ecosystems. They support soil health, improve water infiltration and quality, and are habitat for wildlife. Native plants support more pollinators and more wildlife than do nonnative plants. In addition to supporting more caterpillars, native plants are more attractive as sources of pollen and nectar for pollinators than nonnative plants and support more species and more individuals.

Native grasses and flowers are best adapted to local growing conditions, require minimal inputs for establishment, and are able to tolerate drought or heat, which will become more common in many regions. In addition, some native species are able to tolerate the poor growing conditions found on roadsides.

Although the initial costs associated with establishing native plant material are relatively high, particularly in plans that include a higher density and diversity of flowering plants or specialized species, native plants are often more cost effective in the long term. Once established, the plantings persist over time and require less mowing as well as fewer herbicides and other weed control measures, thereby reducing long-term maintenance efforts and cost. In contrast, controlling the growth and spread of invasive plants along roadsides through repeated mowing and rigorous herbicide use is very expensive.

Vegetation Management Is Important for Pollinators

Disturbance to vegetation (e.g., mowing, haying), as well as the use of herbicides, can result in direct or indirect harm to pollinators. However, in many ecosystems, periodic disturbance is important for maintaining plant diversity. For example, periodic disturbances in grasslands can prevent encroachment by woody plants. The frequency of such activities, as well as the scale at which they are implemented, influences their impacts on pollinators. Overall, negative pollinator response to vegetation management is usually temporary (aside from a poorly timed event that affects a population of an imperiled species that has no other populations nearby).

Herbicides Can Be Used in Ways that Reduce Harm to Pollinators

Widespread use of herbicides can have negative effects on pollinators by reducing important food plants. Roadside managers and other vegetation managers can reduce the impacts of herbicide use on pollinators by:

- using herbicides within an integrated approach that incorporates a range of methods to prevent or manage weeds and non-compatible vegetation,
- targeting nonselective broadcast applications that can damage host or nectar plants, using herbicides as efficiently and effectively as possible,
- reducing off-site movement of herbicides, and
- limiting direct exposure of pollinators to herbicides when possible.



Photo: Idaho DOT

Collisions with Vehicles Are Not a Major Source of Mortality for Most Pollinators

Hundreds of thousands of pollinators are killed by vehicles on roads, but research suggests that the numbers appear to be a smaller proportion of the overall populations using roadsides. Mortality rates of butterflies on roads, for example, range from 0.6 to a maximum of 10 percent of the population within the roadside, depending on the species, rates that are lower than numbers killed by natural enemies like predators or parasitoids. However, road mortality can be higher for some species of pollinators than others. For example, butterflies appear to be one of the more common groups of insects killed by cars. Some butterflies that are strong fliers have the ability to dodge vehicles, while other species that are less able fliers are more susceptible. Migratory species like monarch butterflies may have higher rates of mortality due to vehicle collisions at certain times of the year; during the fall migration, for example, the eastern population of monarchs encounter hotspots of mortality while crossing a few highways. The available science indicates that the benefits of supporting pollinators on roadsides outweighs the costs.

Roadsides with High-quality Habitat Do Not Increase the Proportion of Pollinators Killed by Vehicles

Although pollinators and other wildlife are going to be killed by vehicles as long as roads exist, there are ways to reduce pollinator road mortality. Reducing roadside mowing can reduce butterfly mortality, as can enhancing the diversity and abundance of wildflowers on roadsides. Current research suggests that roadsides with high-quality habitat actually reduces pollinator mortality rather than lure pollinators to their death by vehicle. This is thought to be because pollinators stay within the roadsides rather than flying across roads more frequently in search of flowers.

Pollinator Conservation Has Public Relations Benefits

Pollinator conservation is very popular with the public. Many people intuitively understand the importance of pollinators and are motivated to help protect these important animals. In addition to concern for pollinators generally, many people feel deep connections to individual pollinator species, such as the monarch butterfly. Talking about DOT work to protect pollinators and native plants can increase public support for DOTs and inspire the public to engage in pollinator conservation as well.



Flowering habitat within New Jersey median. (Photo: Darlene Adamo, SJTA READI Program.)

Additional roadside and pollinator frequently asked questions can be found at:

Roadsides as Habitat for Pollinators: Frequently Asked Questions (Xerces Society)
xerces.org/publications/fact-sheets/roadsides-as-habitat-for-pollinators-frequently-asked-questions

For more detail, please see:

Pollinator Habitat Conservation Along Roadways, Volumes 1-16. National Academies of Sciences, Engineering, and Medicine. Washington, DC: The National Academies Press.

Project materials available here: <https://www.trb.org/NCHRP/NCHRPWOD362.aspx>

This fact sheet was created through NCHRP 20-44(55): Implementing NCHRP Guides on Pollinator Habitat Conservation along Roadways.

