Science Policy Outreach Task Force at Northwestern University OVERVIEW OF ROADSIDE POLLINATOR HABITATS AND BEST MANAGEMENT PRACTICES

SPOTlight: Roadsides can provide important resources and habitats for pollinators, thus the proper management of roadsides is essential to support pollinator communities.

How do roadside habitats benefit bees?

- Native flowering plants on roadsides provide bees with the necessary pollen and nectar that they need to survive and reproduce.¹
- Roadside vegetation and bare ground provide bees with a variety of materials for nesting .¹
- Roadside habitats can help connect isolated habitat patches and facilitate movement of bees between patches.^{1,2}

Do roadside habitats support bee communities?

- Studies have found that roadside habitats can support an abundance of bees. In Iowa, one study collected nearly 800 bumble bees along six 1000 meter transects located on roadsides, suggesting a large population of bumble bees utilize roadside habitats.³
- Roadside habitats can support a diversity of bees. A study in Kansas found that roadsides restored with native plants supported diverse bee communities similar to prairie remnants.⁴

What threats do bees on roadsides face?

- The management of roadside habitats can be detrimental to bee and pollinator communities.^{1,4,5}
- The frequency of mowing can alter and remove floral resources for bees and well as remove host plants for other pollinating insects. ^{1,5,6,7}
- Herbicides as well as other roadway pollution such as gasoline, anti-freeze, and vehicle exhaust, and can contaminate roadside soil with heavy metals, yet the impacts of many of these pollutants on roadside bees is unknown.^{1,5}
- Invasive and nonnative plants are generally abundant on roadsides and can decrease the quality of floral resources available for bees.⁴ There is evidence that bees prefer to forage on native plants. One study found that roadside habitats restored with native plants supported a higher abundance and more species of bees than weedy roadsides.⁴

What are the best management practices for roadside habitats?

- There are many studies regarding the frequency and timing of mowing to best support bee and pollinator communities on roadsides. Although there is some debate on when the best time to mow is, infrequent mowing increases plant and pollinator diversity.^{1,5,6}
- A study in the Netherlands suggest mowing twice a year, at the beginning and end of the flowering season, typically May and August. This mowing regime created a habitat with the highest plant diversity and most pollinator visits compared to not mowing and mowing only once a season.⁷
- Mowing in the early and late summer can also be optimal as bees and most pollinators are the least active at these times. Whereas mowing during peak flowering can greatly reduce floral resources available for pollinators.¹
- Establishing native plants and controlling invasive and nonnative species on roadsides can provide bees and pollinators with high quality floral resources.^{1,3,4}

References and additional resources

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[4] Hopwood, J. 2008. The contribution of roadside grassland restorations to native bee conservation. *Biological conservation*, **141(10)**.

[5] Galea, M., Wojcik, V., Adams, L. D., & Cole. 2016. Technical manual for maintaining roadsides for pollinators establishment, restoration, management and maintenance: a guide for state DOT managers and staff. *Pollinator Partnership Online Publication*.

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