Empire State Native Pollinator Survey Final Report

Summary of Recommended Management Actions

Reduce the use of pesticides and herbicides. Pesticides and other chemical poisons have known negative effects on nontarget species like native pollinators. A recent report on the costs and benefits of pesticides containing neonicotinoids in New York State (Grout et al. 2020) constitutes the most complete review of studies to date. The study shows that neonicotinoids can, but do not always, result in risk to bees in New York and elsewhere. In agricultural fields, neonic exposures were likely to impact honeybees 74% of the time, while on ornamentals impact was 89% of the time, and on turf containing weedy flowers impact was found to be 100% of the time. Neonics potentially pose a risk to pollinators due to their high toxicity, systemic activity in plants (i.e., they spread throughout the entire plant, contaminating pollen and nectar, which are food sources for pollinators), and relatively lengthy persistence in the environment.

Control invasive species. Although some invasive plants provide nectar sources for pollinators, our native pollinators have co-evolved with native plants over thousands of years and many will not forage on invasives. Invasive plants can also outcompete native plants and create a monoculture. These monocultures provide a short-lived pulse of floral resources whereas many pollinators require nectar sources throughout the spring, summer, and into the fall. Most of the species using invasives are habitat generalists and tend to be more widespread.

Reimagine mowing and burning regimes. Roadside mowing can be curtailed to a great degree and timed for seasons with lower pollinator activity (e.g., late fall). Additionally, staggering mowing to maintain floral resources year-round will benefit pollinators. Raising the mower bed or

otherwise allowing vegetation to remain higher will protect nesting habitat for ground-nesters. If using fire to maintain open habitat, it is generally beneficial to leave some areas unburned during prescribed burns, to provide refugia for species. This is especially important for early life stages of moths and ground-nesting bees.

Convert lawns and other biological deserts into pollinator habitat. This is one strategy, along with provision of nest sites, that could be pursued in developed areas or natural habitats surrounded by development.

Discourage high densities of honey bee hives. A growing body of research is showing that European honey bees (Apis mellifera) may outcompete, and transmit disease or parasites to, native bees. With backyard hives this issue is localized, but when hives are in high densities and forage in natural habitats, the native bee fauna may be depauperate. We observed many honey bees foraging in natural habitats during the Survey, suggesting the potential for impacts on wild bees.

Retain coarse woody material – snags and logs – in forested ecosystems. Many pollinating flies and beetles are saproxylic, meaning they rely on dead wood, particularly in the larval stage. Further, some bees are cavity nesters, and need the softer tissue of dead wood to bore into (both standing old trees and coarse woody debris on the ground). Saproxylic insects are of conservation concern in parts of Europe where forests are highly managed and dead wood is lacking. This material will benefit some rare natives such as leafcutter bees as well. Many remaining late-successional (old-growth) forests outside the Adirondacks and Catskills exist in small patches; maintaining large forest blocks, increasing the size and number of patches of late-successional forests within these forest blocks, and improving connections among these patches will benefit dependent species.

Maintain spring ephemeral understory and improve habitat nearby. In deciduous forest habitats with native pollinators, maintain a native spring ephemeral plant understory to provide early season resources to these forest dwellers. In addition, maintaining and improving native floral resource availability in adjacent habitats throughout the season (spring-late summer) will benefit these pollinators. Overbrowsing by deer in some parts of New York has degraded the forest understory, which now consists only of invasive herbaceous plants and shrubs, which have limited value for pollinators.

Maintain hydrology and natural vegetation regimes of wetlands. For pollinators requiring wetland habitat, maintain the natural hydrological regime of the wetland to favor natural structure and native floral resources. A large, forested buffer should be maintained surrounding the wetland and invasive plants should be controlled. (see Control Invasive Species).

Minimize lighting to maintain dark skies. Many native moths are attracted to artificial lights, which change normal travel and foraging behaviors. Minimize lighting to maintain dark sky conditions. In areas where artificial lighting is necessary, use sodium lights or other low ultraviolet lamps or consider motion sensor lights if appropriate.